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ABSTRACT

This publication features work presented at the Second Annual Virtual Reference Desk Digital Reference Conference (October 6-17, 2000, Seattle, Washington). These proceedings include papers and presentations by conference presenters representing public, academic, and government libraries, as well as subject-specific AskA services, from the United States, Canada, Australia, Denmark, and Japan. Conference participants identified several key issues facing practitioners and researchers. The publication opens with records from plenary sessions, including the "Welcome" presentation by R. David Lankes; transcription from the keynote address by Michael B. Eisenberg and Charles R. McClure; and background on the "Impacts of Digital Reference" panel. The presentations and papers that follow provide a snapshot of current services, research initiatives, and products that help define the field of digital reference. Sections are arranged by topic (or conference track), each one highlighting a different area of digital reference: (1) "Real-Time Technologies" features services using Web contact software and instant messaging technologies for digital reference; (2) "Software for Digital Reference" introduces tools developed in-house for specific services as well as customizable applications; (3) "Managing Digital Reference Services" discusses issues in service development and maintenance including staffing, question-answer procedures, publicity, technical support, and modes of service; (4) "Issues and Research in Digital Reference" presents a range of topics including standards development, commercial versus non-profit services, communications issues, and digital reference service in government and distance education contexts; (5) "Spotlight on User Needs and Behaviors" focuses on methods for gathering and interpreting data from users and translating needs into effective service; (6) "Digital Reference Service Spotlights" includes first-hand experiences from one subject-related AskA service and academic and government libraries; (7) "Digital Reference Networks" offers insights on collaborative efforts in digital reference among multiple institutions; and (8) "Resources in Digital Reference" highlights processes for developing, procuring, and evaluating resources for use in online and traditional and reference service. (AEF)

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The Facets of Digital Reference: Conference Proceedings of the Virtual Reference Desk Second Annual Digital Reference Conference

October 16-17, 2000
Seattle, Washington

Edited by Abby S. Kasowitz and Joan Stahl

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ERIC Clearinghouse on Information & Technology at Syracuse University
2001

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Facets of Digital Reference

The Virtual Reference Desk
2nd Annual Digital Reference Conference
October 16-17, 2000 • Seattle, Washington USA

Conference Proceedings

Edited by Abby S. Kasowitz and Joan Stahl

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About the Contributors

About the Editors

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Abby S. Kasowitz and Joan Stahl
Syracuse, New York and Washington, DC, January 2001

Preface

This publication features work presented at the Second Annual Virtual Reference Desk Digital Reference Conference, "Facets of Digital Reference," held October 16-17, 2000 in Seattle, WA. These proceedings include papers and presentations by conference presenters representing public, academic and government libraries, as well as subject-specific AskA services, from the United States, Canada, Australia, Denmark, and Japan.

Conference participants identified several key issues facing practitioners and researchers including scalability, or the ability of services to grow exponentially in response to user demands; quality criteria for expert responses and evaluation methods; the proliferation of new commercial services and increased competition for libraries; and the use of new software technologies and tools to help automate and streamline Internet-based information exchanges.

The publication opens with records from conference plenary sessions, including the "Welcome" presentation by R. David Lankes; transcription from the keynote address by Michael B. Eisenberg and Charles R. McClure ("Digital Reference Librarians: Who Needs 'Em?"); and background on the discussion and participants of the "Impacts of Digital Reference" panel.

The presentations and papers that follow provide a snapshot of current services, research initiatives, and products that help define the field of digital reference. Sections are arranged by topic (or conference track), each one highlighting a different area of digital reference:

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7. "Digital Reference Networks" offers insights on collaborative efforts in digital reference among multiple institutions; and
8. "Resources in Digital Reference" highlights processes for developing, procuring, and evaluating resources for use in on-line and traditional reference service.

The purpose of the proceedings is to provide information professionals and digital reference service providers with the most up-to-date information in this quickly growing field and to allow institutions to share thoughts and experiences with each other. The editors hope that the information presented here will contribute to the ongoing dialog on the subject of digital reference and to efforts in the development of quality and technical standards.

This publication is also available on the Virtual Reference Desk Web site at: http://vrd.org/conferences/VRD2000/proceedings/index.shtml

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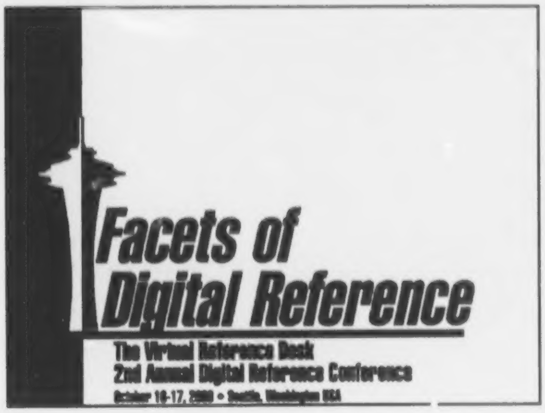

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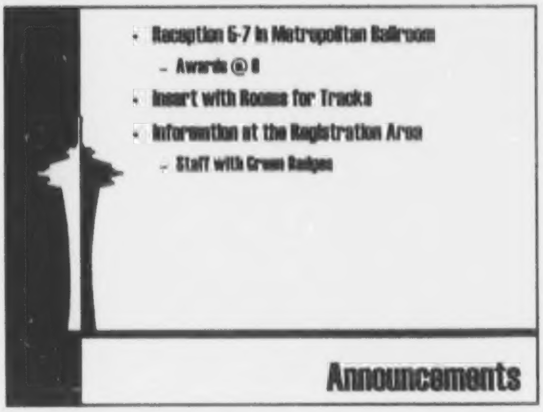

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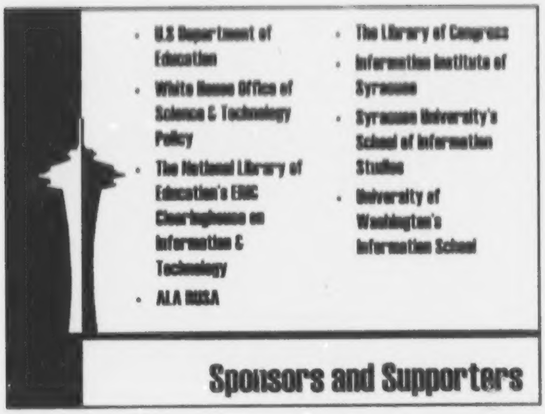

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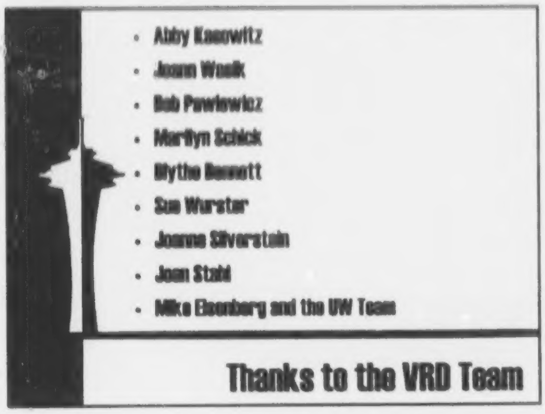

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- Abby Kasowitz
- Joann Wasik
- Bob Pawlowicz
- Marilyn Schick
- Blythe Bennett
- Sue Wurster
- Joanne Silverstein
- Joan Stahl
- Mike Eisenberg and the UW Team

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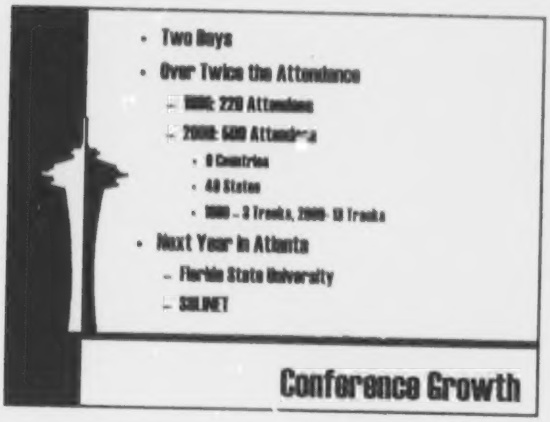

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- Over Twice the Attendance
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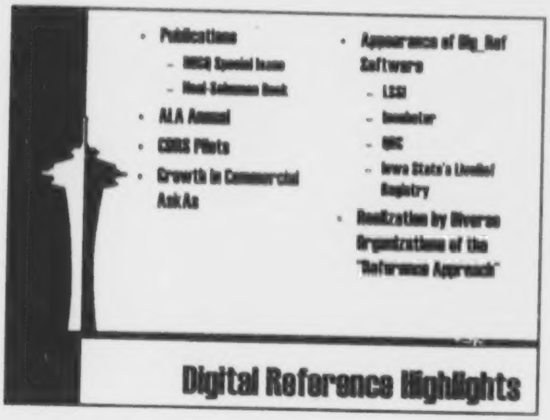

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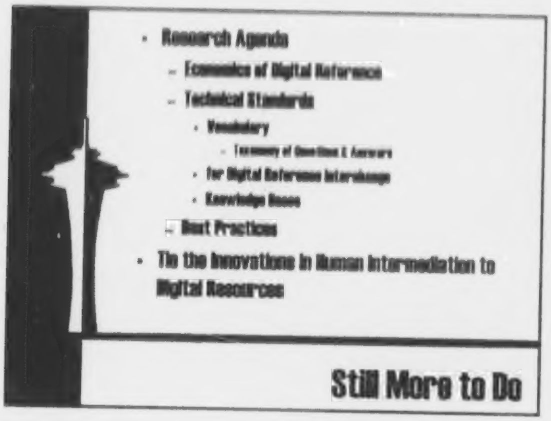

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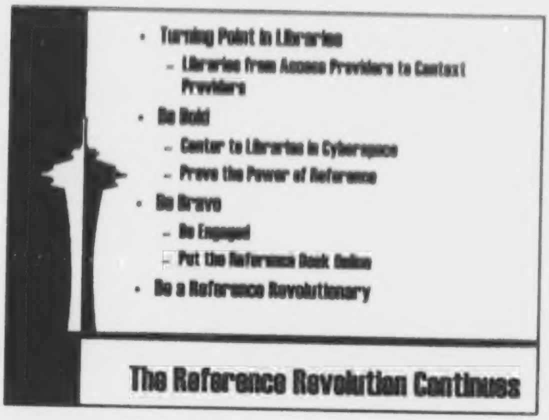

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- Be Bold
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- Be Brave
  - Be Engaged
  - Put the Reference Desk Online
- Be a Reference Revolutionary

The Reference Revolution Continues

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Digital Reference Librarians: Who Needs 'Em?
Or
Key Issues in Digital Reference: Taking Action

Michael B. Eisenberg,
Director and Professor, School of Library & Information Science, University of Washington, Seattle
Charles R. McClure,
Francis Eppes Professor, School of Information Studies, Florida State University, and Director, Information Use Management and Policy Institute

INTRODUCTION

Mike Good morning, hope you can see us ok. Chuck and I decided that we do lots of speeches and presentations, but what we don't get to do anymore is talk. Chuck and I, for 15 years or 14 years, had offices right next to each other at Syracuse University in the School of Information Studies, and we could just knock on the wall, and say, "Shut up", or, "I disagree with that," or whatever. And, Chuck would get passionate on the phone, and Chuck loved to hold telephone conference calls with his speakerphone out there. And I would hear the whole thing, and I would disagree through the wall. Now that Chuck is in Florida, and I'm in Seattle, which, think about it folks, we got about as far away from each other as you can in the continental United States!

Chuck There is a reason for that, too, by the way.

Mike When Dave and the group at the Information Institute asked us to participate in the *Facets of Digital Reference Conference*, we thought what might be nice is for us to have a conversation. And so we have come up with an outline, but we have to tell you that a lot of this is going to be a bit free form - not that we don't have fairly well thought out and documented thoughts about this area, but we thought it would be more of a conversation. And we left an empty chair here, in case any of you were so burning with the desire, that you've got to jump up and say something, even during the interaction, so the chair is open. So, Dave gave this rousing intro speech, but I think Chuck and I, if [we] can be so bold, might say, "Maybe we're not so sure." All this great VRD stuff, and all this new VRD stuff, whatever, …ah… let's take a closer look at the issues.

Chuck Does Dave get this emotionally upset all the time? "Do it, do it…" What is it?

Mike Two things: he's on east coast time….

Chuck Is that it?

Dave If I bring up a couch, can we get therapy?

Mike Get out of here… So, what we really want here is to take stock, and stop and think. In some ways, Dave may be right, because we are on the cusp of a reference revolution. So when the Library of Congress (read about [their project in] *American Libraries*), is talking about 24/7 global reference services- that's pretty interesting stuff. But, maybe we better think about where we're going, and [if] digital reference [has] really arrived. Is it still viable? In the forms that we are talking about? Other alternatives that might better serve such needs. And what are the opportunities, [and] some of the cautions? And what are the various directions are that we might take? And lastly, if digital reference has finally made it, maybe we really better think about it. Because it's like that Woody Allen story, that I never want to belong to a club that would want someone like me in it, right? Well, if the world has said [that] digital reference is a really good idea, maybe we better be thinking about the next thing. Because they are not always right. So, if everyone in the world, except maybe Chuck, thinks that digital reference is a good idea, is it really?

Chuck Well, you know, I really have to laugh, listening to Dave earlier. He's like, 'this could be a really good thing, the number of traditional reference questions going down in our library. That gives us more time to prepare for the digital onslaught.' Excuse me very much, ya'll. Do you like that, "ya'll?" One year in Florida, boom, and you're ruined. But the fact of the matter is, while those statistics are going down at the reference desk, we don't have any way to figure out [why] the stats are going up on the Web site, or on the digital reference site. So, what I'm trying to get to today, is that I think there are a number of issues that we need to start thinking about. And, some of these issues, I think, are fairly serious. Now, one of the problems here, Mike, you know, is that we got converted. It was great, you know, Dave's going, "And we're number one," I was ready for you guys [to] go, "Put me in coach, put me in -- I'm ready!" The point here is, Mike, that we have a bunch of converted people sitting out here. They already believe.

Mike Well, the reason they believe is because digital reference has grown up over the last 5 to 8 to 10 years. From some fairly humble beginnings, but it has really kind of made it. I remember, I was there, as Dave said, when we started The Electronic Librarian, TEL, which evolved into AskERIC. And it was Dave that helped us to set up the first reason that we thought we needed that. There was this wonderful new tool out there called Gopher. Remember Gopher? And we had put together a team at the ERIC Clearinghouse; with support we had recreated what we thought [was] the best Gopher site and system in the entire world, and we had invested thousands in people hours in learning how to do that. Except, when we put this Gopher stuff up, nobody could find anything. So, other people were inventing things like Veronica. Remember Veronica? Remember the first time? The librarians in the room: you remember? It was an index, Chuck. In a lot of my speeches, I have librarians say the word...say that, say the word, "index."

Audience Index

Mike Get all tingly, feel good, whatever, right? We're in the right room, Chuck. That's what librarians do, we love and relate to indexes.

Chuck We're dealing with some sick people out there.

Mike It's actually genetic, we've done this study at the University of Washington Medical Center.

Chuck I don't want to know.

Mike In the Genome project.

Chuck I don't want to know.

Mike But, it's an important gene to have these days, because they don't need help in finding and using information, but people were starting to use Gopher, and they needed assistance. And, even with Veronica and stuff like that, that didn't happen. So, it was really a joy to have these new tools, but people were overwhelmed by them. So, what did we do? We hired somebody, they gave us a little money from the Department of Ed, and we chained that person to a desk, in a back room. It was actually our room next to the copy machine, and the person started answering questions via e-mail on the Web. We believe, although, someone else would say, "We did it first in '82!" But, we believe we were the first formal information service that did that. And why did we do that? Because people kept saying that we need to add intelligence to the Internet. And artificial intelligence just didn't cut it, right? So we needed to use, not the next best thing, but an even better thing, and we called it "natural intelligence," "people intelligence." And I think, in a way, we are still doing that because the Web just makes it even worse, right? The stat I like to show is that the number of Web pages doubles every 50 days. So, you know, imagine, you know, Dave was talking about Alta Vista. Imagine if Yahoo really worked. Suppose you get to the screen, you type in two things, it automatically knows who you are, it comes back, and it has exactly what people want, that answers their questions intelligently, in the form they wanted, or whatever. I mean, we'd be all out of work.

Chuck But, the truth is, they are terribly bad, and that's great news for us.

Mike But what do we do with it? So what do you think? I know there are questions about where we're going and stuff like that, but it seems to be that there is still this tremendous need in spite of the Internet, the Web, all the search engines, and everything else (for librarians to help locate and evaluate relevant information).

Chuck Well, you know, in the good old days,....that's what you were talking about, right? The good old days, were great because, remember that phrase, "You could fall into a gopher hole?" Well, I think we can still fall into the digital reference hole, as well. Because part of the problem, and I think this is what we really need to get down to, Mike. I mean, you and Dave are sitting here [going], 'Rah, rah, rah!' Let's get at how far we have really pushed the envelope in the digital reference environment. I really think, that's where we need to begin. And the fact of the matter is that there are plenty of places out there in the Web environment where I don't need a librarian.

Mike OK, fair enough.

Chuck It's unclear to me, and I think it's unclear to a lot of people, whether you are going to get the same, different, better, worse --what kind of quality [service] do you get in one environment vs. another? I don't think we know. I'm not sure what evidence there is out there. I think we're going to look at a couple of the commercial sites later on and think they're great! I love it: Dave commented that when you go up and talk to a reference librarian, they can see that you're in a hurry, they can see [you], they can make eye contact. My grandma was great. It was great conversation, 'cause here's how my grandma talks to people she goes, (shows a lot of facial and hand gestures), and she never said a word! I was trying to do this the other day with my digital reference service. providers, and you can't do this (gestures). We need some interactive video. How long has CUSeeMe been out?

Mike Actually about 10 years, Cornell University.

Chuck Yes, and here we are doing e-mail reference.

Mike Yes, but let's give us a break. It's still the beginning, we're still moving through things. But, you can give clues in e-mail reference as well. In fact, I think there are some digital librarians that would tell you that, when they have been interacting with clients through the text, and some of those contacts are not getting in the way, that people are more willing to give you [more precise cues as to] what they are actually looking for.

Chuck So a key issue here is, it's not only training us, with our net side manner, but we are going to have to help patrons and users.

Mike I'm glad you didn't say train users. You said "help."

Chuck Help.

Mike Help.

Chuck [Help] them to understand how you give cues in this environment.

Mike That's correct.

Chuck It's a very different world. But, remember now, Mike, this is Chuck of the "55% rule."

Mike I knew he was going to bring this up.

Chuck In my younger days, "d-a-z-e," by the way. And, for those of you who don't remember it, we did a lot of work, and the fact of the matter was, whether you were in a public library setting, an academic library setting, [or] a law library, on average, reference librarians gave [a] 55% correct answer fill rate, on quick fact and bibliographic questions.

Mike And, that study has never been challenged.

Chuck Other people have done it. I mean it varies; it could go up to 57% or whatever.

Mike In Seattle, all questions are 60% and above.

Chuck Right. I've got to tell you this: I was doing this presentation at ALA, and I was saying it's 55%, and this woman stands up and says, "Dr. McClure, you need to come to my library, because at my library we're at 85-90% correct answer fill rate." And, this was one of the libraries we had in the study! (Laughter) So, my point here is, inquiring minds want to know: What's the correct answer fill rate in the digital environment? In the Web environment, as opposed to traditional? Dave is right on the money, and I hate like hell to agree with Dave in public, ok, but we don't [know] what [the] cost per reference query is. I'm a director; convince me. Convince me that this is something that I should spend my money on, because, excuse me very much, my budget is tight. Now, I'm not against it. I'm just saying, where are the data? Where do we go? What do we not know about these things? I think we are starting to get at some of these quality issues, and I hope we can get back to this, 'cause I'd really like to get emotionally upset about this. (Laughter)

Mike But, before we get to the quality stuff—I know that's there, that's one of our bullets, and he's going to try to hammer home on this stuff, but I have a couple of rejoinders. What I really want to talk about first is that when we talk about digital reference, and you talk about the environment that we're going to be dealing with, it's not just today, it's not just asynchronous-based, whether it's Web or e-mail. Do you remember the other day, we took Chuck and his wife on the lake tour of Lake Washington, and we wanted to go to a restaurant afterwards. We didn't remember the name of the restaurant over in Bellevue, but we did remember the type; it's kind of a tapas restaurant, you know, Spanish. First of all I tried my Web browser, and I do have a Web browser on this (waves cell phone), and I do check ball scores. I was doing that all afternoon. But we quickly called SPRINT PCS, 411, and do you realize that when you call now, they don't say, "I'm sorry, I don't have that name," they say, "Well, what kind of restaurant are you looking for?" And, they actually engaged in a question-and-answer with me, and they wouldn't let go. And then after they finally got the number, she said, "Would you like me to call and make a reservation for you?" She didn't say, "Would you like me to connect you?"

Chuck That's great stuff! Why don't we do this?

Mike That's what I'm saying, give us a chance to get there.

Chuck We only have 20 years to retirement, man!

Mike Anyway, so….

Chuck You know the part that he didn't tell you about this though was, that when we finally got to the restaurant…you have to love Seattle, and this thing with coffee. So I sit down and I'm listening to people ordering coffee, and it's like a strange tongue. "I'll have a double hit, very thin, no fat, espresso…" (laughter)

Mike That's why we need digital reference, to help out at counters. To know how to order coffee properly in Seattle and things like that. The other thing I want to point out is the commercial side. I don't know if I'll do it right now, maybe we should move on, and I may come back. How many of you have checked out the various commercial sites lately? How many of you have checked, not just Ask Jeeves, but the Ask Jeeves Answer Point? How many have looked at that? How many of you have looked at [the] LookSmart site, recently? Hands….hands. How many have looked at InfoRocket.com? How about EXP.com? See, a little less there. And then there is About.com. I'll see what we have on these, and, maybe I'll show a couple.

Chuck This can be a real interesting threat to what we're doing here. This is a complicated environment out there, and there is competition, serious competition, for what we do, and how we do it.

Mike But, I think that's a good sign, because, remember the first battle? We talked about access; there is the access battle, right? There are library catalogs, there is the front end to information databases and things like that, and then came the Web, right? We all knew when the Web first came out, and we had these wonderful things called browsers. But, that was not the right way to access the Web. We needed to do it another way. We didn't need a browser; we needed a searcher. And, we all knew that. Us index-type people with the genetic defect, we knew that. But we didn't invent the damn thing, we let these two hotshots from Stanford invent Yahoo!, and they are the multi-billionaires, instead of librarians today. And that's why when I see stuff like this, when I see InfoRocket, or something like that, when I see LookSmart Live, and I see they have a list of people with charges [for fees] and things like that on them. I don't know, start Navigator, it's ok (gestures towards laptop as Web browser launches). I'm an IE guy, I live in Seattle. It's a requirement; otherwise they take away your stuff. But, you start to see some of these things that these guys have here on these sites…..Here's the InfoRocket site, and you can go into the Ask A Question [text box], but they list people, they list other things on here. You've got all kinds of stuff. In the EXP.com site, there's the expert way to ask a question. This is not a live connection. That's why we're having a problem here. So you get to see all the different things, and then after you connect to one of these sites, it has a list of experts…

Chuck Well, doesn't it also let you make a deal with how much [to pay for an answer]?

Mike Yes, and how they want to charge, and make a deal. Wouldn't that be nice if we did that at a public library? You could either get someone that doesn't have an MLS from my school, but has one from your school, and then you ….(that was a joke, folks) you pay different amounts, depending on their expertise. And it excites me that these places are now doing this kind of thing. Because I think that it speaks well that the world is coming around [in recognizing the importance of reference work]. This is an important development that we need to think about, and what we have today, which is e-mail-based, flat reference, [with] no signals, is just the beginning.

Chuck So you think that library-based digital reference can hold its own in the marketplace, Mike?

Mike Not only do I think that it can hold its own, I think that in a free society, library-based digital reference is…..if it is not the future, then we are in trouble as a society.

Chuck Now that is something I can agree with. The fact of the matter is, if we lose this opportunity, right now, this moment, this second, to make the digital environment work better than how it's worked in the traditional environment, I think we're in bad shape. So, Dave's call to arms of, "we need to do stuff now" is right on the money.

Mike The question is: What do we need to do? Where do we need to go, what are some of the issues? Issue #1 [is] complacency. How many of you are doing digital reference out there? (Show of hands in audience.) It's not good enough! Because you are complacent. You're not doing synchronous [reference transactions], you're not doing wireless, your [reference services are] not imbedded in devices throughout society (waves cell phone). You're not competing directly with intelligent search engines and things like that, or agree[ing] to deliver [these services]. The customization: every time a user comes to you, it's a new interaction, right?

Chuck Here's the story, y'all: "Oh, for my library, we do a pretty good job with the resources we get. We do ok, for a library our size." Ever heard that one before? Baloney! I don't want to hear about "good enough service!"

Mike Right.

Chuck What I want to hear about is outstanding, unbelievable, exemplary service that BANG, knocks everyone dead. "Oh….we do pretty good for the budget we get." OK? That's it. I've had it with that.

Mike Because in the library world, across libraries, we're talking about school, public, private, academic, special, whatever, we have thought that "good enough" was good enough.

Chuck "Good enough" is not good enough. It's the whining thing….. "we have a director that doesn't like….oh, we don't have enough money." It's unbelievable. OK, there it is. Give me a break.

KEY ISSUES

Mike So, what are the issues? We made our point. I think we agree on something.

Chuck What do we agree on?

Mike We agree that this could be important. Libraries could play a central role [in providing networked information to the public]. That this is vital in order to have the Internet used in an effective way to meet people's needs. All people. So, where do we go from here? We buy in. We agree, Chuck, that "good enough" is not good enough.

Chuck OK.

Mike What are the issues?

Chuck I'm going to bullet out some of them, and I'm going to try to talk about some of them. And we'll let Mike [join] in every now and again. But let me bullet out a couple [of points] and just talk about what they are, and we'll come back, ok? We can come back and go into more detail. Issue #1: management. It's unclear to me whether we need to re-invent the management organizational structures which we're currently using for digital reference. It makes me absolutely nuts to think that 9,000 libraries around the country are trying to do the same damn thing with the same damn sources, and let's just re-invent everything for every library in the country. Give me a break.

Mike Management – gotcha.

Chuck Second one. How about connectivity issues? I know, I know, no one wants to hear about the digital divide. We just finished a study for a National Commission on Libraries and Information Science; and the fact of the matter is that over 50% of all public libraries don't even have 56k [connectivity to the Internet]. Now let me explain to you the quality service…

Mike What percent of libraries have some connectivity?

Chuck The good news is that 95% of the libraries are connected. The bad news is, let me tell you what you can do with 28.8 [connectivity]. OK? And forget T-1 [lines]. We should be talking, what is it -- OC3? OC5, OC10-12?

Mike Connectivity is still an issue.

Chuck How about, there are still some training issues, there are still some help issues, there is still some learning how to work in this environment.

Mike How many of you would say that less than 50% of your staff could really do quality digital reference service right now? (Show of hands in audience.) That's pretty rare.

Chuck Yeah, but, you know, it makes me nuts. You want to be a digital reference librarian? Yes. Shazam! You are! It's great, I love it! And, excuse me very much, we're talking about these two damn good library schools, where you do learn this stuff.

Mike What worries me more are some of these library schools.

Chuck Don't go there, we'll get upset.

Mike Things like this, [like] the AskERIC digital training that people go through, which has been expanded, the kind of [training] stuff that Internet Public Library does.

Chuck It's great stuff. What I'm tired of is, "Shazam! You are a digital reference librarian." We can do better.

Mike OK, training.

Chuck Let me talk about evaluation. I do want to put up a slide on this. Here's my favorite slide on evaluation. Everything I know, I know from Calvin & Hobbes. Right?

Mike Right.

Chuck (Reads from cartoon appears on screen.) (http://calvinzone.50megs.com/cgi-bin/i/ignorance.gif)

(B. Watterson, Calvin and Hobbes, 17 May 1992, distributed by Universal Press Syndicate)

"It's true, Hobbs, Ignorance IS Bliss! Once you know things, you start seeing problems everywhere... And once you see problems, you feel like you ought to try to fix them... And fixing problems always seems to require personal change... And change means doing things that aren't fun! I say phooey to that. But if you're willfully stupid, you don't know any better, so you can keep doing whatever you like! The secret to happiness is short-term, stupid, self-interest. We're heading for that cliff! I don't want to know about it! Waaugghhh! (Falling off cliff) "I'm not sure I can stand so much bliss. Careful, we don't want to learn anything from this." (Laughter.) Now, my point.

Mike Yes, what is the point?

Chuck I'm afraid that we haven't learned from what we've done. There is a whole bunch of needed research; there is a whole bunch of evaluation questions that really need some attention here. What have we learned from how we do it? Yes, and Dave, second time today, you are right. It goes from best practices-kinds of evaluations, right up to various serious, funded research. How does digital reference work? How can we learn? How can we do it better? And that's what you were talking about earlier, right?

Mike No question about that. Keep going. You were supposed to finish the bullets five minutes ago. I want to see which ones I choose to engage you in or not.

Dave You know, Dave, you're not paying me enough to do this.

Mike Is he paying you? (Laughter.)

Chuck OK, then there are a whole bunch of finance questions. This is [a] "how much bang for the buck" question. What am I getting, as a director, out of digital reference services? What good is this? Does it really solve the questions? Are they answered correctly? What is the cost? And, because most of us live in what I call the "stagnant pie world," the financial pie isn't getting bigger, so anything in the library that is going to [be] fund[ed] different[ly] or [funding] new stuff, means you take it away from someone else in a library.

Mike No. Wrong. I couldn't disagree more. That's the problem with our field. We narrow our focus, and we think small. If we provide central services that are not just meaningful for library users who currently use the library—but if we believe that we can provide service and information and a valuable thing to the entire society, then the solution is not to live within your budget. The solution is to find ways to increase your budget. That's what you have to do.

Chuck I agree.

Mike And this city is the perfect example. The Seattle Public Library, the King County Public Library down in Pierce County, Tacoma, it can happen.

Chuck It can happen, but it doesn't happen with complacency, and it doesn't happen with "good enough."

Mike OK.

Chuck Are we ok?

Mike That's correct.

Chuck OK.

Mike And we may need to find some financial models where we benefit from the commercial aspects too. For example, what if a public library is providing help desk, or digital reference services, to some of the local businesses in town, and meeting their customer needs through that, and there is a financial return for that, 'cause they know how to do it better, and some of those people are working in the public library, and they are able to provide services in that environment as well?

Chuck So, we agree. One of the issues here is the well-known "ROI" concern: "Return on Investment."

Mike Right. And new models, not just…

Chuck What does digital reference do for my local economy? For this, that, and another thing. Because we have to go out and tell our story.

Mike That's exactly right. We haven't done that. We have focused sometimes on our narrow constituents and we have done that to an extent, because those are the ones that make immediate demands on us, just like Calvin. But what we need to do in our academic libraries, and [in] our special and school, and certainly our public libraries, is [to] think about our broader audience [and] who we are responsible for. And how we can meet those needs, and how important it is. If you think about all of the human health services in our public institutions, that potentially is our scope of who we can deal with.

Chuck Just as an aside, Mike, one of the studies we're finishing at the Information Institute at Florida State is that economic justification, if you will, of what the economic benefit of public libraries is in the state of Florida.

Mike Where can I get the URL on that?

Chuck I'm not telling you.

Mike Is it done? No, I'm serious.

Chuck No, the preliminary slides are done; they are on our Institute's home page (at http://www.ii.fsu.edu/Projects/St-Lib-FL/index.html). And the short story here is that there are huge economic benefits to both the local community and the larger state that result from a range of library services. One of the most important being -- guess what -- digital reference, and the move to digital reference. So, your comment about how important it is for us to make the case for what we dt is important, to people other than ourselves….

Mike Other than ourselves, and the traditional people that use our library. I know the next one; I have the next one outlined too. The next one you are going to mention is the digital divide. The digital divide folks are not saying, "Isn't it too bad that we don't have access to digital reference services from our local public library?" That's not what they are saying, because they can't even think about that or know about that, but that doesn't mean that they have any less of a need.

Chuck There's the key.

Mike That's right. And so we need to be talking beyond the normal people that use our [library services].

Chuck Well, an interesting thing to take a look at is- ya'll are probably familiar with the NTIA, National Telecommunications Information Administration. They just listed their, I believe it's called, TOPS Awards for this year. And if you look at where $30 million dollars went, a lot of them went to what we would call community awareness, community access programs, that did not include libraries. Somebody out there thinks that many of the keys for improved equal access and network environment include a whole range of organizations that don't begin with the L word.

Mike One of things that digital reference can do, and I'm not talking about asynchronous, five-day digital reference, I'm talking about immediate information reference services through synchronous communication. Community centers, kiosks, and public markets, and what-have-you become library services.

Chuck OK, so what you just said was we need to re-think what the context is for the provision of information services. And in a digital environment, my nutso friend over here, out on the cruise out on Lake Washington, he's sitting there, finding out the sports score [on his cell phone], doing this, doing that, you know he can't carry on a conversation, but he can work his phone. That's the real world out there now, despite that it's Mike doing it.

Mike Well I saw that commercial for that IBM kind of thing, you know with the vision thing, and I've got to get one -- I have to sign up immediately for that. But, it's not just me, it really isn't. In the Seattle area, we're talking about new relations between the public libraries, school libraries and the university library. We're not just talking about resource sharing.

Chuck OK, let's just get to it. This is baloney. The public libraries do this. The academic librarians do this. The special librarians talk only to God, give me a break.

Mike Well, they are special.

Chuck And, they are special; I understand that. My point here is models of resource sharing, Mike, and we've talked about this. We got to get over this stuff! Oh, that the public people [are over here], oh there are the academic people,... we have to get over that one. This boat is one we're all in together.

Mike And, it's not just sharing resources; we're talking about sharing services and going beyond the resource side. And, it is not just ILL that takes two weeks. With the kinds of things we're talking about in the digital reference world—that really gets down right to it.

Chuck So, there's the bullet. And the last bullet I'll throw out in front of you is information policy. Those of you that know me a little bit know that I fight the policy wars in DC, and it's brutal there. And, we have some interesting policy issues that we have to start dealing with. Not the least of which is privacy, security, encryption, filtering, and The Freedom of Information Act. When do you divulge access? Part of me, when we talk about these policy issues, gets me back to the Calvin and Hobbes thing. It's like the guy who jumped out of the 45th floor of the building, and as he's falling to the ground, someone on the 20th floor says, "Hey, how's it going?" and he says, "Everything is fine so farrrrrrrrrr." That's where we are, because these policy issues, and the filtering and encryption stuff, the security stuff, we haven't paid enough attention to these things.

Mike I agree with that. I really do. But, what I'm concerned about is that it doesn't tie us in knots from going ahead and trying new stuff. I think that is really important. This management thing, for example, which you talked about—there is no question that if we are going to have true collaboration across types of environments and libraries, then we need new styles of management. This Library of Congress project, and I don't know exactly the details of it, and the kind of things that the VRD's AskA Consortium is doing here and these various groups, and OCLC is getting involved—this is good, and we don't want to have to wait. As long as it's not a linear thing, let's deal with policy issues, let talk about those, but let's not be afraid to experiment. Maybe Napster is not the answer in that environment, but Napster is helping [to] take a new looks at things and it's meeting people's needs today. The point is to figure out ways that we can share resources and music and things like that that benefit everybody, and not wait until Congress passes a new copyright kind of thing, so we can't wait.

Chuck If we wait for Congress to figure this stuff out, we'll be in the grave.

Mike Right.

Chuck So, Chuck says, at the local, state level, let's start solving these [problems]. Let's start [by] saying, "our policy, our position, is in the state of Washington, this is what we believe; this is what we are going to do, boom, boom, boom." Because there is nothing else out there, or because it's messy out there, we better have [policies] that we understand ourselves for our own libraries. Otherwise, I believe we're going to leave ourselves wide open, and to quote my undergraduates: this is going to get "more worser."

Mike I don't disagree with that, but I don't want to lose sight of the central thing. Maybe the policy issues within our schools and our field—let some folks work on that, and that is some of the people in this room. I'd rather have this group here focusing more on the issues of how we work together in a management sense, and the training thing. You talked about that. I couldn't agree more. We need to find new ways [to collaborate], and what we need to do is if everyone in their institutions gets some ideas as to the nature of the training that is needed, and the new models for training, using the technology for training as well within providing service, I think that we would be a lot further along. I really do think that again I agree with the policy stuff, but I don't want to get hung up on it.

Chuck OK so let me be clear. I'm not against digital reference; this is great stuff. We're doing great stuff. But there are a number of these issues that we just bulleted [and] that I think we need to spend a little time on. Now, later on, I think we're going to want to come back and talk about mechanisms to get that done.

QUALITY ISSUES

Mike Right. We'll try to conclude with some of those things. But the bottom line is that the Internet is just still too damn dumb to leave it by itself. We can't leave people alone on the Internet because it's going to get worse and worse.

Chuck NO! It's going to get "more worser."

Mike More worser, ok. That's why we need to put people into that mix. I want to come back to the issue you mentioned, the quality issue. And I know absolutely nothing about this. First of all I'm going to ask Lankes to come up. Where is he?

Chuck He left.

Mike How about Joe Janes. Joe, come on up here a minute. Does everybody know Joe Janes? From the Internet Public Library. What I would like Joe to talk about for a few minutes is what do we know about quality, and what can we say…I mean you have been in the digital reference business for what, eight years?

Joe Five or six.

Mike What was IPL? What was the first year?

Joe March of '95.

Chuck How do you know you are doing good stuff?

Joe Well, that's a good question.

Chuck No, answer the question!

Joe The studies that we've done are not frighteningly different from 55%, to tell you the honest truth. The one that you and I did where we just sent out reference questions to people and had them use the Web, and not traditional resources, we had 63% correct answers. Tomorrow afternoon, mark your programs, there is a session on commercial and non-commercial Ask An Expert services. Two of my students are presenting, Chrystie Hill and Alex Rolf. We are going to find out -- I'm not going to steal their thunder -- but there is a number in there that you're going to find very interesting. Especially in comparison to 55%, about how many of the answers to questions that we sent to commercial and noncommercial Ask An Expert services we could verify the answers to. And, we also ask things like, do they clarify…

Mike I know that some people will be there, but a lot of us won't. You've got to give us a little of the answer.

Joe Uhhh, No. I refuse to sell out my students. Go to the session. It's in double digits, I'll give you that much.

Chuck Let's just get back to the quality issue. Do they -- do we -- provide high quality digital reference service, and how do we define high quality? What constitutes quality? If you don't know what the quality standard is, you're not going to be able to say you ever met the standard.

Joe Well, that's exactly right. The standards issue. I think you are absolutely right. You listed a few. There is accuracy and verifiability, but there is also answering the question that was asked, which begs the whole question of the reference interview, and what you are and are not able to do in this kind of environment. There is also time to answer; there is also the affective component to it. Do people feel comfortable with the service? Will they return? Return rate, and willingness to return. Do they like it? My contention on evaluation is, first of all, those of you who are doing reference in the real world, on the desk, on the phone: How many of you evaluate that reference service on an ongoing, systematic basis? (Show of hands by audience.) That's exactly what I thought. Number one, shame on us all. Because, A, we don't do it. I think there is a lot we don't want to know. We don't know how much it costs, we don't know how good it is, we don't know whether people like it or not, we don't know whether we are doing any good, we don't know even if we are answering the right question. I think we should be ashamed of ourselves as a profession for doing that.

Chuck Here's my question to you. Let me just propose a couple of quality standards. Here's a quality standard that 65% of the digital reference questions will be answered correctly within a 6 hour period of receipt. There is a quality standard.

Joe I'd like it to be higher than that. But 65% is ok. Within 6 hours.

Mike Can we do that? How many are involved in digital reference? Raise your hands. They're afraid now. That's what I thought too.

Chuck Because this is what I also call a Ouiji board evaluation. Ouiji board evaluation is "will you provide a 65% correct answer fill rate within the 6-hour time period?" (Pantomimes using a Ouiji board.) MmmMmmmMmmm…Yes! Here's another one for you.

Joe OK.

Chuck 90% of the users of a digital reference service will assess the courtesy of digital reference librarians to be at least 8.5 on a scale of 1–10, 10 being high. Boom.

Joe Good. I like that.

Chuck Trust me, I do this for a living, y'all. We can come up with these. And the short story is, we don't.

Joe Well, no but I think it would be a lot easier to know in the digital environment than it is in the real environment for two reasons. First of all, I think that when you are doing reference on the phone or in person, it's awkward to evaluate right after you're done. So, you're finished with people, and they are backing away, 'cause they are off doing their thing, and you try to push a questionnaire on them and say, "Oh, how'd we do?" which they don't want to hear. In the digital environment, you can send them a questionnaire over e-mail two days later. They've had a chance to think about it, internalize what you've done, and to reflect on the answer. And then you send the questionnaire…

Mike OK, ok, you've cut into our time…

Joe You called me up here!

Mike Thank you very much, Joe Janes. Lankes. Come up here. There have been some studies on AskERIC recently about quality, right? Tell us about the AskERIC quality.

Dave Damn good. What else?

Chuck Well, right.

Mike Well, wait. Damn good, or do you have some real stats?

Dave There are real statistics. Makiko Miwa, who is actually here and will be doing a session, found that [there was] about [a] 90% satisfaction rate and positive response from people using the AskERIC service.

Chuck OK. Stop. I love this stuff. The satisfaction baloney.

Mike Didn't you do a major study on that? You got like $800,000?

Chuck No. No. Here's what I love. A patron comes into the library. They can't even find the damn reference desk. They finally figure out where it is, they go up to the reference desk, and the reference librarian is sitting there with their head down, can't get eye contact. Finally the reference librarian says, "Yeah, what the hell do you want?" Then, the patron says, "Well, could I please use", and the reference librarian says, "Yes, it's over there by the National Union Catalog, over there!" So, then you give them an exit interview. They leave the library, and the librarians ask them "To what degree are you satisfied with the service that you received today?" "It was great." Boom. You think I'm kidding you? That's what studies show. It's like we could be sitting at a moat with machine guns. Satisfaction is so multidimensional, it's lost its meaning.

Mike Dave, since he hasn't given you the chance, could you go into a little more detail into the dimensions of satisfaction which was covered on the study? Don't disappoint me here, Dave.

Dave Yes sir. Well, that study was conducted based on Bob Taylor's seven aspects of evaluation. It went into things like timeliness, accuracy, filtering process, and it really had a rather in-depth set of criteria. What was interesting was that Taylor's aspects…

Mike Value-added model.

Dave Taylor value added model was developed for systems, not specifically for digital reference. But, with a little more work, they added three more dimensions to it. And it works extraordinarily well.

Mike So, there are some more specific dimensions, which is exactly what you are talking about?

Chuck Absolutely.

Mike We need to be much more specific then to say, "Are people satisfied?" Are they getting accurate information? timely information? Has it narrowed the information down to a manageable amount? Has it met their needs?

Dave One of the interesting things that the Virtual Reference Desk has done [which] has developed out of a group called the AskA Consortium – [is] to develop a set of quality criteria. They call it [the] "Facets of Quality Document." It was a very interesting paper. It was the first time we had an expert panel put together a series of characteristics and say "These are some facets [of a quality digital reference service] you should look at," and then we added dimensionality, so level of performance and different benchmarks within [were incorporated]. They are slightly different when you talk about networking services together. For example, one of the first criteria was non-biased "we will be a non-biased service." We were at a meeting, actually Joe was at the meeting, and brought up, "You know, in a networked environment, you don't necessarily want a non-biased environment. Sometimes the bias is what you want. You want a point of view, you want a context." And so, yes, I think there is good work happening in the Facets of Quality, and I think what's interesting is while a lot of it carries over, it's not a one-to-one match between traditional reference and the digital reference environment. So there is a lot we know, but there are some different twists on it, particularly when you begin to network the services together.

Chuck But, let me be blunt. If you come away from this session, and you say, "Sheesh Chuck, man, he's nuts, we've got to do evaluations…" OK. But that is not defined as, "Were you satisfied with our service today?" That's not what I said. Satisfaction studies are only a very small part of evaluation.

Mike Thank you Dave, appreciate it. All right, so we're starting to tie this up. We do want to leave some room for questions, and stuff. I want to summarize where we are and then move to a conclusion type area that looks ahead towards the future. First of all, we have said that quality counts. Quality is important, a multi-dimensional sense of quality. We have said that training is crucial across the types of questions that are answered. We said that this issue of new forms of management that in fact move institutions to work together in new ways is important. The other thing I heard you say is that "good enough" is not good enough. We need to be bold in this; we need to move really ahead and put ourselves out there. That I second and really promote this, because I do feel that we are at a revolution. But, again, like the Web browser and searcher war, I think it can be very quickly that we lose this battle, and wind up being second fiddle to the commercial sites.

Chuck Yes, I guess, I'm sort of with you on that. I'm less concerned about the AskA wars, if you will, between the commercial folks [and libraries]. And, it may be a good thing, Mike, you're right. It may be a good thing to get us to sharpen up our thinking on these approaches.

Mike Well, when you talk about digital divide there are those who can afford to pay 50 cents, or a dollar or three dollars for every time they need a question [answered]. But the vast majority of people [cannot].

Chuck This won't be a problem in the future because [in] the next administration they are going to have Internet, digital ref, voucher systems.

Mike That's right.

Chuck You didn't know about that?

Mike Well, in my latest meeting with George W…

Chuck Never mind. So, what we are coming down to here is…we really do need to push the envelope. What we do is neat stuff; it's still evolving, but we've got an envelope to push. Those bulleted issues that we talked about are not going to go away in the short term. They need some attention, and one of the things I'd like to propose is a conscientious research agenda in this area. When I say a "conscientious research agenda," I mean that where there are teams of people [who] are working on some of the issues we talked about, as opposed to, "Oh, did you hear what they are doing over at…wherever?"

Mike But wouldn't it be great if we could have it. Maybe it's Library of Congress or IMLS [Institute of Museum and Library Services], or what have you, that provide a set of evaluation mechanisms that every digital reference service can implement. You talked about recreating wheels, that if each of these people has to go out and develop their own, that's not going to do it.

Chuck Well, there is a model here. The model is, just as an example, anybody here from Michigan? Yes, some hands. In the state of Michigan, the public libraries in Michigan said, "Excuse me very much I'm tired of the way funding occurs here," [so] 115 public libraries got together, kicked in "x" amount of money to get something done, and boom, they had a research project. I am of the opinion that if you have to wait for others, if you have to wait for these [grants], and all this other stuff, it is going to take forever. We need a clearinghouse to be able to exchange what the best practice information is. We need an agenda where we actually go after what these quality standards are, and how to demonstrate it. And, we need to do it now. This research needs to start now!

Mike The clearinghouse exists. That's the AskA Consortium, and the VRD group here. And, in this state, actually, I'd have to say, in a positive way, the state library would be very receptive and ready for that. We are working together, and moving pretty quickly. What I'm worried about is that we're all going to go home, and we like all this stuff, and it's great and it sounds good,…and we're going to start to implement some of these training programs, and doing more digital reference and that stuff. But, and I mean well, Chuck, I don't want you to yell at me next time I come, you know. I want you to say, "Mike, you did a good job in our library." But, I don't have the expertise or the time to get out there and develop it [alone].

Chuck Chuck says we need to invent these evaluation methods and quality standards one time.

Mike That's what I'm saying.

Chuck You heard my colleague, Joe, say, "Yeah, but Chuck, here's some quality standards. Here's some criteria. Now what do we need to do?" We need to operationalize them; we need to proceduralize them, so that we're all collecting data in the same way.

Mike So one of our recommendations to Dave, and [to] Joe, and the group in this room, is that we need quality standards that can be used by all of us in a simple, direct way, to measure the effectiveness and quality in digital reference service.

Chuck So, then we stand up and we say, "Hey, look at what I do with my digital reference service." My point is, we can't say that right now.

Mike And, the second thing I would say is the training side. We need to be able to have established training [guidelines] that we can adopt, and then use and implement at a local library or information center.

Chuck Help me with this. You are a library educator. Is that right?

Mike No, I'm an administrator now.

Chuck Here we are with a number of library educators in the room. I think we need some instructional modules that very clearly say, "Here are some skills. Here's how to get them related to digital reference service." Now, maybe we're not quite sure what those are, and how they are doing it. Let's find out. The "Shazam" approach to being a digital reference librarian isn't where it's at.

Mike This thing about—that you can just do it by doing it, I agree with that. I want to be careful. We haven't thrown out the term "librarian," and it sounds like a very specific sense. There are people in the room that are doing digital reference who are not necessarily librarians or working in libraries, and that kind of thing. We're broad enough to that. We're using that as a model in the example, but in essence, Ask Dr. Math, and all the other AskA services, they are part of the same community. But, I do like the idea of somehow certifying the "Good Housekeeping Seal of Approval," the "Eisenburg – McClure," certification of digital librarians.

Chuck Let's talk about this just a second. The problem here is that anyone can say "I'm a digital reference librarian," [and] then you have to wonder where the quality is. Now, this is scary stuff, isn't it? This is kind of an unknown area, here. But one of the things that we hear all the time is, "How do you know [when you're] getting good service?" Some of you say, "Well, I know if I go to this Web site, it's good stuff." How do we know when you're going to digital reference librarians, that you are getting good stuff? I think we need to think about it. I'm not sure I have the answer right now.

Mike If we have consortia, and if they are sponsored, if you are part of the VRD AskA Consortium, and you know that you are getting digital reference service through an AskA service, the burden can't be on the end user, either. It's got to be through our libraries or something like that, that say, "When we set up these mechanisms that our patrons are getting answers through whatever system, that we know that has a certain quality base."

TECHNOLOGY CONCERNS

Chuck OK, let's go to the next one. Why can't we do a better job of exploiting the technology that is out there, in the digital reference environment? Whether it's interactive video, or whatever, we are not doing it.

Mike I do agree with that. What concerns me, and I know we have to set up these databases and work on the interaction of how we route things, I've got to tell you, the future of communication in the network environment, in the world, is not e-mail.

Chuck No?

Mike It really isn't. And, it's not voice mail, either.

Chuck No?

Mike I think some form of real-time digital reference, and we've [been] talking about it and doing it. How many of you are experimenting with synchronous real time reference, through the networks? I like that, share that. Put that out there; let's hear about it.

Chuck What about real-time when you are in your library's Web site, and you can click on "Ask A Librarian."

Mike That's good, because a year from now it will be double or triple [the number of libraries offering real-time digital reference]. So, that's where I think we're going. I think we need to do it with various devices. I don't use a Palm [Pilot] anymore. I have my HP Jornada and I have my cell phone, [and] I want digital reference help through that.

Chuck Did you ever see the movie, "Mr. Gadget?"

Mike No. (Laughter.)

Chuck Go ahead, sorry.

Mike No, it's not just a gadget. I want to see.... here, look, look (waves cell phone). It says here right now under the Middle East Crisis, I'm reading, the news is the summit is working out, here Clinton is talking. He appealed for Mid-East peace, and whatever. But, I want some background on it, you know, my nephew is over there, and stuff like that. I want to find out more about it. What I'm saying is, real time [information] through various devices. All the technology, it's really there, and as networks and technology get more intelligent, and they will, then we incorporate that. We do meet user's needs, as much as possible through technological needs. As someone once said, "Any teacher that can be replaced by technology, should be." I'll say the same thing about librarians. Any librarian that can be replaced by technology should be.

Chuck The rest of this that is going to be scary is...remember, a lot of these sites are 24/7.

Mike 24/7.

Chuck That's the world we're living in. And so when we say, "No, I'm sorry, we close the library at 5:30 today.... and if you please leave a note, we'll get back to you." [The patron] wants to know right now. We're talking real-time, all time. Real-time is different than all time. That's the world we live in.

SUMMARY RECCOMENDATIONS

Mike To leave time for questions, I'll go first, and then I'll leave it to you. I think we need to look forward, and not backward. I think those of you that have not been involved with digital reference, you may not want to even worry about baseline e-mail reference and all kinds of involvement with that. You may want to jump right to some kind of live interactive or something. I don't know, I'm not recommending that purposely. We need to look together. We need to look at users. Who is the new user? How are users different today than they were? And, they are different. The Web is a reality that we need to know about. Not know about, but accept, and work it into what we do. Dave talked about context. And that's a good word: Context. Context. Context. And, figuring out the major questions, and the nature of users, and the nature of our services, and how that [all figures into providing effective digital reference service]. And I would add collaborate, collaborate, collaborate. And I don't just mean connections. I don't mean coordinate. I don't mean linking. We need to truly collaborate, because the end user doesn't care whether they are really getting library services from the University of Washington Library, or the Seattle Public Library, or the Michigan Library. They want service and information. Third thing [is to figure out] costing models and economic impact. We can't throw up our hands and say, "Well, there is no way to do that." What I talked about before is not trying to live within our current means, but finding new means, new money, to do these kinds of things because it is important stuff. The last thing I'll say is the teaching and training role. That is because the reference question has to move from beyond even just getting an answer to folks, but this issue of helping people to become information problem solvers. And that doesn't mean that they become self-service and self-users. But it means we become information consultants, and helping people to better define their information needs, and to find ways to meet those needs. Now, with this interview and this interaction, but also with future ones. To me, if we can pull off some of these issues, we're somewhere.

Chuck I'm right with you. The beauty of letting Mike summarize this is that he takes everything that I wanted to say. But I do have a couple of other things. I think that where we've come in this discussion is kind of full circle. The truth is, and Stuart…is Stuart [Sutton] still in here? Stuart and I were talking earlier…. I'm not sure where we are on this wave. You know, the digital reference wave. Is the crest still building, are we on the top of the crest, are we crashing? Now those of you that are old, like me that Joe pointed out…. I was there when we had the online database-searching model. Oh my God, we could get on and do online database searching. Any of you remember that? You could walk into the library and have an interview, or fill out a form, and someone would do a search for you. And now, that is just part of the reference process. No big deal, right? But we want this field of digital reference to be so commonplace that it's the norm; it's not different. It's the norm of what we do. OK, so that's point one. Point two is this is the pillar of what we do in libraries and information services. The pillar of what we do is meet user information needs. If we forfeit that responsibility, if we can't do that well, what do we do? So, it's not just a matter of having service, having this in place; it's us as information professionals that say "Put me in, coach." This is stuff I do, and I do it well.

Mike And, I got to remind us, again. I think that we gave up; we lost, in one way, the access role. The people providing access, and the tools for access today are the AltaVistas of the world, the Yahoo!s of the world. These are the ones that are actually more responsible for providing access to information than libraries are. That's another speech at another conference, but I think we can recapture that. Because quality information is [the] library. And junk is junk. Therefore, I think that the commercial services are something we need to look at, learn from, co-opt, and do them one better. Because, you are absolutely right. This is the center of our role. Meeting people's information needs is what libraries and the information profession is all about.

Chuck The conclusion is: vision, commitment, do it. Just get going on this. We've offered a couple very practical kinds of next steps that we think ought to be done, and I've got to tell you, Mike, if I look through the program here, today and tomorrow, unbelievably good stuff. I hope that this time next year, Dave, when we're down doing this conference in Atlanta, or wherever, that what we can also talk about is how we move forward from this, on some of these key issues. Thank you all very much.

AUDIENCE QUESTIONS

Mike We have about 10 or 15 minutes for questions. There are microphones all up and down [the center aisle]. Can you introduce yourself to the audience, please?

Carol I'm Carol Hert from Syracuse University. Another threat that I see on the horizon is sticking with the notion that digital reference as stand alone services. Every Web site has AskA places on it, and if we continue to think about this thing, that we're a standalone [service], we're going to miss this huge marketplace. And I go to a lot of Web site development meetings and I really do hear them talk about the same issues that we talk about. But they don't have people like us informing that discussion. Web sites in general are a threat, if we continue to envision this as [being made up of] stand alone services.

Mike Very good. Thank you, Carol. Any questions or comments?

Q1 I was wondering…You seem to be making the assumption that we need to have 100 % accuracy, as…have you guys been parents? (Laughter.) My daughter hit teenage years, and I suddenly am never right.

Chuck No, I don't make that assumption. And, yes, we're both parents. The reason I'm nuts is because I have a teenage daughter. What more can I say? What I am making the assumption of, we don't know what we do right now. You can't be better if you don't know what you're doing right now.

Q1 Also, in the economic industry, economists agree that not one of them agrees with any other economist too.

Mike A 100% accuracy is not necessarily a definitive answer that is the truth. It may be a range of ideas, that speak to an issue. But I think the other thing that Chuck mentioned was [to] set the standard. You decide what an effective answer is. Then, you should be meeting that 100%, whatever that might be.

Q2 I was just wondering, when we start to shift resources in the direction of digital reference, and in providing digital services, what happens to the information poor? By that I mean the people that don't have home computers, don't have Internet access. We can spend 80% [of our budget] on digital services and the other 20% of our resources on providing services in the library.

Chuck Well, I'll take a quick stab at it. First, you are exactly right. What we are in right now is a transition period. The argument is, to what degree will the information have-nots, however you wish to define that, [be adversely affected by digital information], where that group will continue to be fewer and fewer, and we don't have to worry about that? My immediate take is that we are going to be stuck in this transition environment for a number of years in the immediate future. What we have to worry about is those folks that don't have access, and those that have unbelievable access. So in terms of resource allocation, this is going to be very tough.

Mike But the information-have nots may need digital reference services more than anybody. Because those people are not the people that are walking into your libraries, frankly. I think that by having digital reference service to community centers, to schools, to after-school programs, to daycare centers and senior centers, and whatever, we can better meet those people's needs. 50% of America right now is wired to the Internet from their homes. OK, and it will probably get to 80%, and then we'll have the other 20% to deal with. We can make more inviting library environments, and try to get these people to come in. But the truth is, we have to go out to where they are. And, that's community centers, that's recreation centers. And, therefore, how do we provide [assistance to meet those users' needs]? It's through digital reference.

Catherine I'm Catherine Sheldon from Seattle Public Library. This is a comment about accuracy in answering reference questions. I'm a fanatic about telling patrons when I'm sure, and when I'm not sure [of an answer]. And, don't we all wish that our physicians would do that. To say I'm looking at this source now, to the best of my knowledge, the way that I'm interpreting this now, I think it's 98% [accurate]. But you all know, and someone already pointed out, that statistical questions are quite controversial and so we need to be sure to tell patrons that just because you think I'm God, because I'm a librarian, and I'm saying something authoritatively, does not mean that it is the one and only answer. It's also important that when we do not find an answer to something quickly, and someone says, "I only have a few minutes," that we tell patrons the fact that I did not find an answer now does not mean there is no information out there.

Mike Especially the point about letting people know. That's [where] guidelines [come in]. To me, someone that answers a question by saying, "Well, here's what we've got. I'm not really completely satisfied with this, and I think we need more…. maybe it's 60% right." To me, that's a 100% right answer.

Chuck Yes, I guess what I'm concerned about though, Mike, is the famous old, "I'm trying to find a citation, blah, blah, blah," and you're at the reference desk, and they say, "Go look it up in the National Union Catalog. It's over there." (Points to a distant location.) That's not an answer. And the same thing can happen in the reference environment, where you say, "It's at such-and-such Web site. Good luck!"

Mike And coming back to people, as well. Digital reference to this point has been single interactions, and maybe it's this trade-off with a little bit of privacy. I'm willing to have them know who I am, and what I am, so that I can come back and picks threads up.

Cynthia Cynthia Teague, University of Minnesota. I'm curious about your position. You seem to be saying that synchronous reference has to replace e-mail reference. I think there are a lot of questions that would be better answered in real-time. But there are other questions where people want to drop it off, and get an answer. They don't want to sit there while you're checking these sources.

Chuck You are absolutely right. And the short story here is: We don't know. This is a situational model. In what instances does what type of reference service provide the best response? Situational kinds of criteria that frankly, when Joe was up here, we don't know what they are. Now, you just proposed one, which is great. Let's go out and find out in what instances does that model work? Because maybe what we want to be able to do is offer multiple methods of digital reference based upon the situational context in which people need information. One size does not fit all. Right? Do you agree?

Mike Yes. You probably noticed we tend to get a little emotional, and exaggerate just a little bit to make a point. The point is we have tended to ignore the synchronous [transactions] coming [along]. I like the idea of a hybrid kind of a synchronous front-end interview kind of thing, and then an e-mail response later. I'm a little concerned about just e-mail. But, if I got a profile on file with AskERIC, and I'm a teacher and they know who I am and whatever, and when a question comes through from me, and they know who I am and they've got all that background, it's on a specific thing, and I can pick it up later. That would be terrific.

Chuck Your point is a great one.

Andrea Andrea McGlinchey from the Department of State, and I'm wondering if you could please address privacy issues a little more?

Chuck As you know, because you work in the Federal Government, the Clinton administration has proposed specific privacy guidelines, and specific privacy policies that should appear on all federal Web sites. In recent work that we have done at Florida State we've found a lot of the federal agencies haven't done that yet. The other problem is that the federal guidelines for privacy are only that, guidelines. There is still plenty of room to wiggle around in. By the way, in case you don't know this, federal agencies have been FOIA'ed (Freedom of Information Act), to get lists of who have read websites; it is a mess. This has made many federal agencies, basically, at the end of each day, remove tapes, anything that had contact with any individual, where individual IP addresses can be identified. I can talk more about this. But the problem here is that we haven't recognized the problem. There still are questions in non-government situations. Can you be subpoenaed to release the IP addresses of who's been talking to you on digital reference? These haven't come up yet in case law, but they will. So, the short answer is: You have to have your policy statements approved by your boards, your governing bodies, so that at least you have that to fall back upon. And there are some great models out there about what those policy statements should be. But in a government setting, it is a very complicated matter because of the FOIA stuff.

Mike I wouldn't mind seeing us, as a group, really jump into this. I'm very concerned about individual privacy in library situations. At the same time, I want these services to know me and be able to customize and personalize, so that I'm not starting from scratch every time. And these are sometimes conflicting values. We need to find some mechanism to deal with that, and maybe we need some law and statutes as well. When I give up certain information like this, it cannot be subpoenaed and made available, but [the government may be allowing that] to happen.

Chuck Short term: we can't solve it; long term we need some statutes and guidelines.

Art Hi, I'm Art Gunn from Atlanta.

Mike Are you going to host this next year, Art?

Art Yes, we look forward to that.

Mike OK.

Art I'm curious if you will share with the group what role the Association for Library and Information Science Education (ALISE) has taken in terms of training for digital librarianship, if any at all? And, what would you recommend that that group involve itself in?

Chuck Well, there are a couple of answers, and the short story is that ALISE probably needs to pay more attention to this.

Mike And they haven't done that. I can pretty definitively say that I have been to the last three or four ALISE conferences and NOTHING has been done, and you are absolutely right. ALISE needs to do something. The schools can't wait for ALISE necessarily. They formed some consortia on distance collaboration, and we need to do more of that. If that is what you are saying, you see this more of an agenda item that we have to put out there, you are absolutely right. Now, Joe Janes, we've been teaching digital reference courses – and Syracuse does — but the next thing is for us to teach them jointly online [and make them] available to everybody.

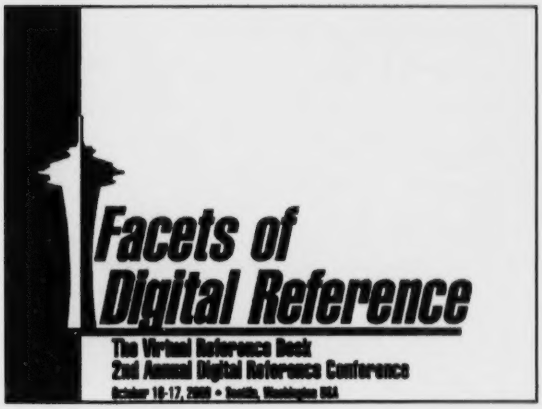
Chuck And, the distance ed. model in this time, right now, excuse me very much. ISU's whole MLS program is available on the Web. SU's is, Mike's is about to be. I think the issue, Mike, is that we need some instructional modules that we can share and begin to work with this. Because if we wait for the organizations [to take the lead], I think it will be forever.

Lisa I'm Lisa Roberts from the University of North Carolina at Greensboro, and I basically got up to say Hallelujah. I'm really ready to do this, and being from North Carolina, I just started thinking, you know, let's collaborate, because in North Carolina we're already set up with the UNC system, but also NC Live, which is purchasing databases cooperatively, and putting them in not only academic libraries, but community colleges, public libraries, and now we've finally gotten into K-12. So that sounds to me like a perfect venue to get together to start talking about this. So, who else is here from North Carolina? Let's talk.

Chuck I love it.

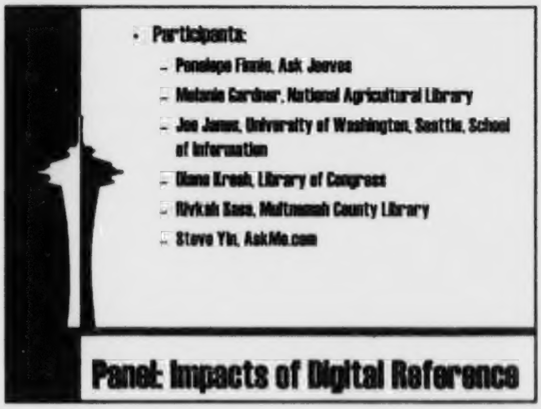
Mike That is a great way to end it. Thank you very much.

Chuck Thank y'all.



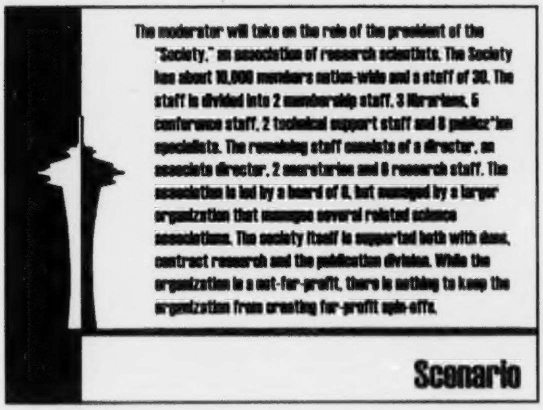
Facets of Digital Reference

The Virtual Reference Desk
2nd Annual Digital Reference Conference
October 16-17, 2000 • Seattle, Washington USA



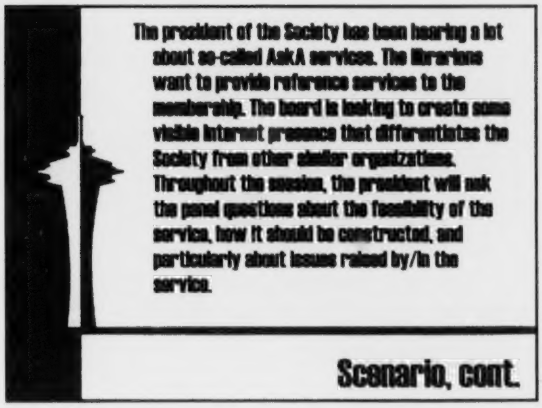
- Participants:
  - Penelope Finnie, Ask Jeeves
  - Melanie Gardner, National Agricultural Library
  - Joe Janes, University of Washington, Seattle, School of Information
  - Diane Kresh, Library of Congress
  - Rivkah Sass, Multnomah County Library
  - Steve Yin, AskMe.com

Panel: Impacts of Digital Reference



The moderator will take on the role of the president of the "Society," an association of research scientists. The Society has about 10,000 members nation-wide and a staff of 30. The staff is divided into 2 membership staff, 3 librarians, 5 conference staff, 2 technical support staff and 8 publication specialists. The remaining staff consists of a director, an associate director, 2 secretaries and 6 research staff. The association is led by a board of 8, but managed by a larger organization that manages several related science associations. The society itself is supported both with dues, contract research and the publication division. While the organization is a not-for-profit, there is nothing to keep the organization from creating for-profit spin-offs.

Scenario



The president of the Society has been hearing a lot about so-called AskA services. The librarians want to provide reference services to the membership. The board is looking to create some visible Internet presence that differentiates the Society from other similar organizations. Throughout the session, the president will ask the panel questions about the feasibility of the service, how it should be constructed, and particularly about issues raised by/in the service.

Scenario, cont.

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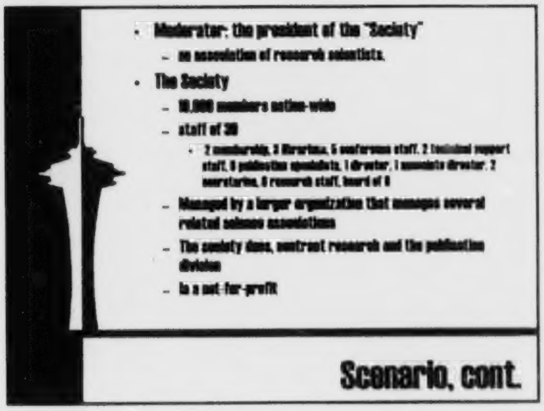

- Moderator: the president of the "Society"
  - an association of research scientists.
- The Society
  - 10,000 members nation-wide
  - staff of 30
    - 2 membership, 3 librarians, 5 conference staff, 2 technical support staff, 6 publication specialists, 1 director, 1 associate director, 2 secretaries, 8 research staff, board of 8
  - Managed by a larger organization that manages several related science associations
  - The society does, contract research and the publication division
  - Is a not-for-profit

Scenario, cont.

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Impacts of Digital Reference

Panel Participants

Moderator: R. David Lankes

Penelope Finnie, Ask Jeeves

Penelope Finnie is the VP of Ideas of Ask Jeeves, where she oversees strategy, features, new directions, partnerships, and UI for Ask Jeeves and Ask Jeeves for Kids. She has been with Ask Jeeves for five years, developing the original site and character in her garage. Two years ago, she developed Ask Jeeves for Kids. As with all start ups, she has worn many hats at Jeeves over the past few years: producer, art director, executive editor, biz dev person, strategist, chief evangelist, and recruiter all at once. Thankfully, Jeeves is no longer 10 people, but has grown to 700 people.

Melanie Gardner, National Agricultural Library

Melanie A. Gardner is the coordinator of AgNIC at the National Agricultural Library (NAL). She coordinates the AgNIC Alliance partnership and maintains communication among partners. Prior to her present position, she was the social sciences librarian in NAL's Rural Information Center. Before coming to NAL, she worked for the University of Maryland at two different campuses. She holds a B.S. in Education, and a Master of Library Science with a concentration in rare books and manuscripts/archives. Ms. Gardner taught school for seven years and has been a librarian for over 15 years; she has been part of the transition from traditional to electronic reference services.

Joe Janes, University of Washington, Seattle, School of Information

Joseph Janes is assistant professor at the Information School of the University of Washington. He is interested in reference, particularly in the use of technologies to mediate and assist, and the use of networked resources in reference. His research is on models of practice in digital reference. He teaches courses in reference, online searching, research methods and statistics, and on the use of Internet technologies in librarianship. Janes holds an M.L.S. and Ph.D. from Syracuse University.

Diane Kresh, Library of Congress

Diane Kresh is director for public service collections and director for preservation at the Library of Congress (LC). Her experience at LC has covered a wide spectrum of responsibilities, including copyright, collections maintenance, document delivery, reference, user training, photo duplication services, and conservation. Diane serves on the LC Internet Policy Committee, directs nearly all the library's general and special collections, and is leading the effort to provide enhanced Internet services for public researchers.

Rivkah Sass, Multnomah County Library

Rivkah Sass is Reference and Information Services Coordinator at Multnomah County Library in Portland, Oregon.

Steve Yin, AskMe.com

Steve Yin is Product Marketer for AskMe.com. Since joining AskMe.com in its early days in 1999, Steve has participated in many different aspects of the start-up business including recruiting, content development, media buys, and product development. Prior to working with AskMe.com, he spent four years with MSI Consulting Group as a Manager of Consulting, where he helped high tech clients such as Microsoft, IBM, and BellSouth.net with sales and marketing strategies. Steve has a B.S. from the University of California at Berkeley's Haas School of Business.

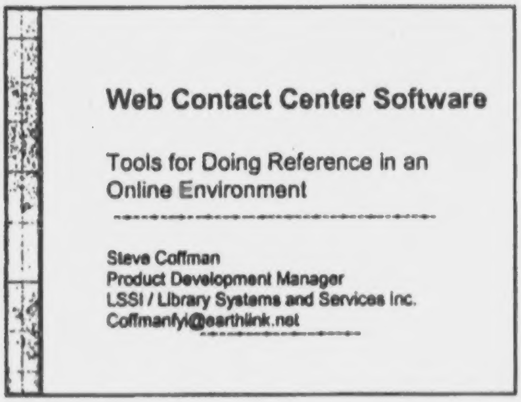
Web Contact Center Software: Tools for Doing Reference in an Online Environment

Steve Coffman
Library Systems and Services Inc. (LSSI)

Presentation

Introduction

This presentation provides a brief history of e-service and presents Web contact software as a solution to problems encountered in e-mail reference. LSSI's *Virtual Reference Desk* is demonstrated as an example of software designed specifically for libraries. Related network services and issues are also discussed.



Web Contact Center Software

Tools for Doing Reference in an Online Environment

Steve Coffman
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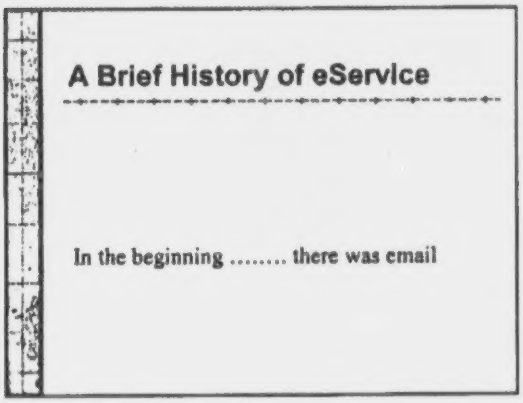
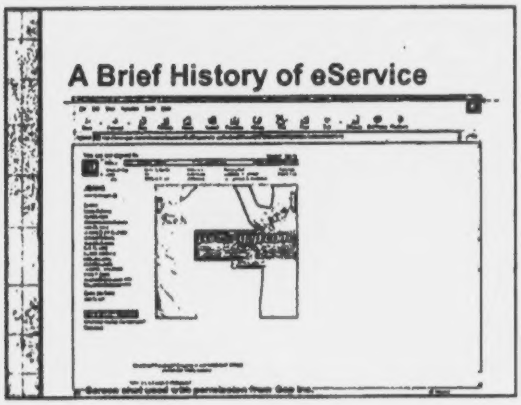


A Brief History of eService

In the beginning .... there was email



A Brief History of eService

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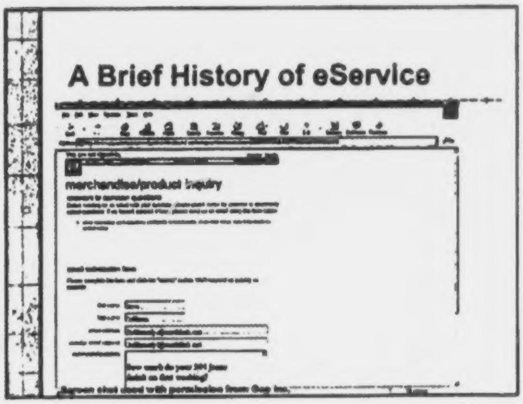

A Brief History of eService

merchandise/product inquiry

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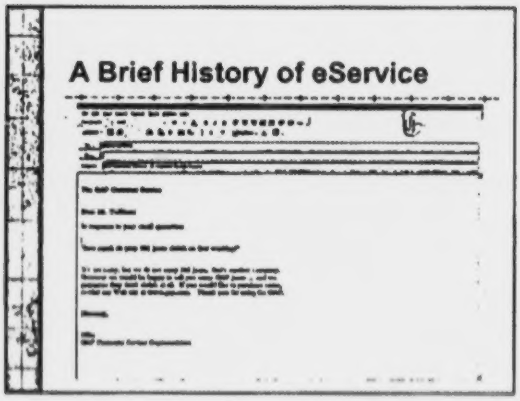
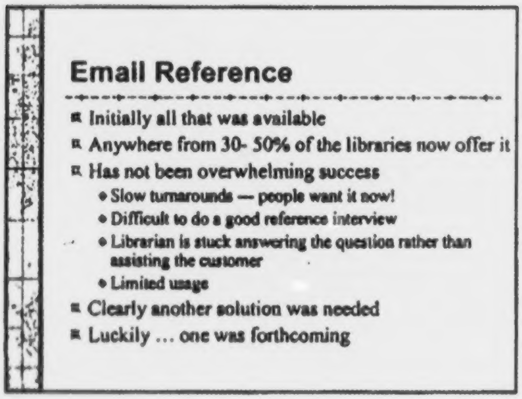


A Brief History of eService



Email Reference

- Initially all that was available
- Anywhere from 30- 50% of the libraries now offer it
- Has not been overwhelming success
  - Slow turnarounds — people want it now!
  - Difficult to do a good reference interview
  - Librarian is stuck answering the question rather than assisting the customer
  - Limited usage
- Clearly another solution was needed
- Luckily … one was forthcoming

Web Contact Center Software

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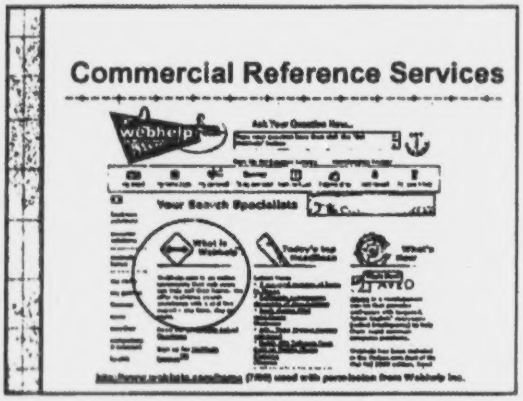

Commercial Reference Services

webhelp
Ask Your Question Now...
Your Search Specialists
What is Webhelp
Today's top Headlines
What's New

http://www.webhelp.com/home (7/00) used with permission from Webhelp Inc.

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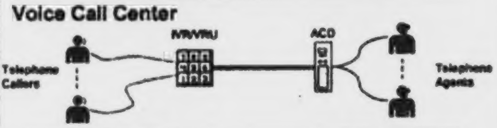
Basic Facts About Web Contact Center Software

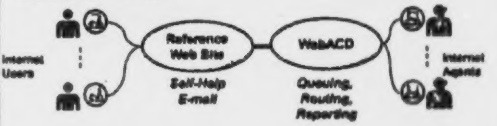
- Designed for live customer service in eCommerce
- Allows agents and customers to work together over the Web
- Based on call center model for efficient, high-volume call handling
- More than 50 vendors already in the market including, eGain, Lucent, Cisco and Siemens
- All spending millions on software development
- Solves many of the problems of email reference
- Since reference is really customer service for libraries, it may be just the solution we've all been looking for.

Based on Call Center Model

Voice Call Center

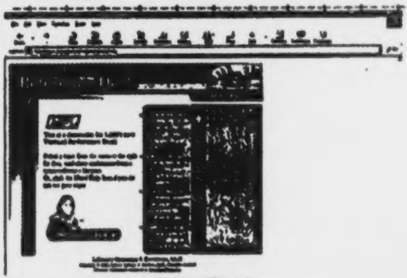

IVR/VRU
ACD
Telephone Callers
Telephone Agents

Web Call Center


Reference Web Site
WebACD
Internet Users
Internet Agents
Self-Help
E-mail
Queuing,
Routing,
Reporting

How It Works

The Reference Front End A Key Component



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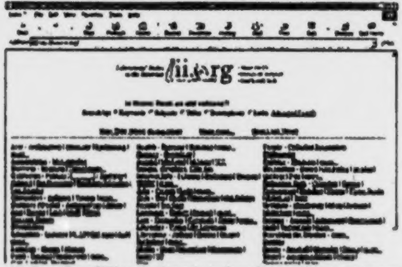
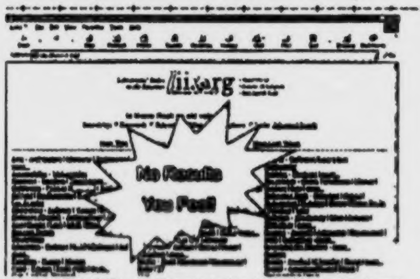
The Customer Needs Help!



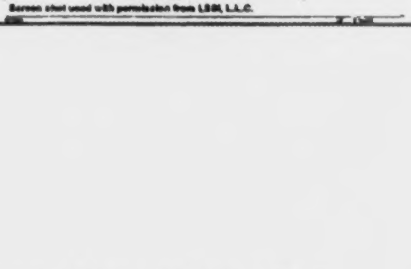
http://www.lii.org (7/00) used with permission from Librarians' Index to the Internet.

The Customer Needs Help!



http://www.lii.org (7/00) used with permission from Librarians' Index to the Internet.

Click to Talk with a Librarian



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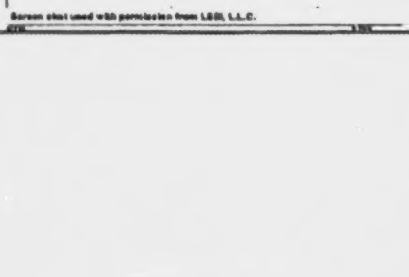
Librarian Screen – Monitoring the Queues



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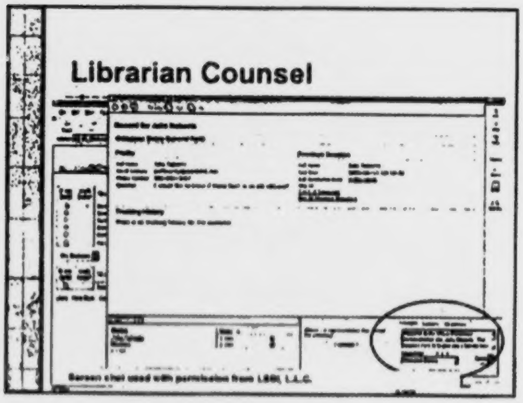

Librarian Counsel

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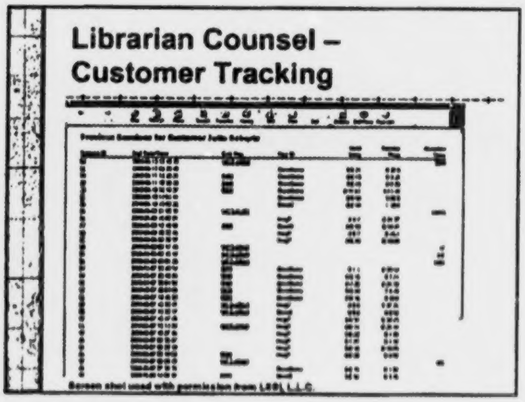

Librarian Counsel – Customer Tracking

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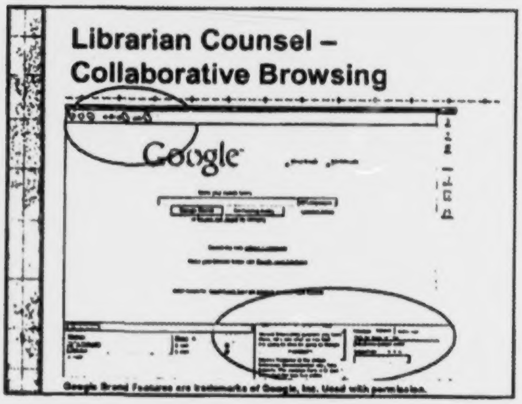

Librarian Counsel – Collaborative Browsing

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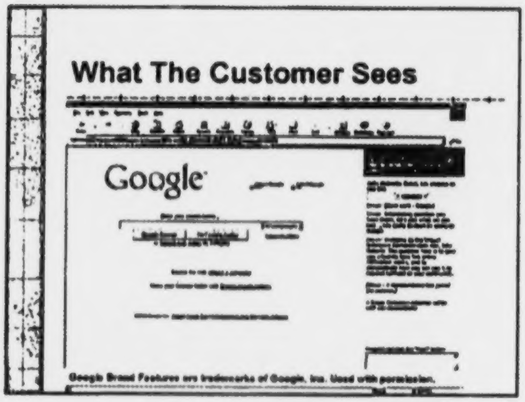

What The Customer Sees

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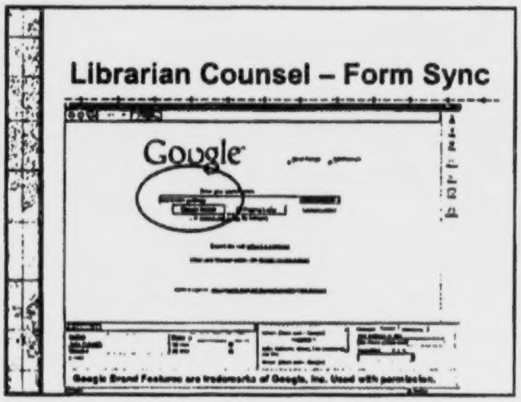

Librarian Counsel – Form Sync

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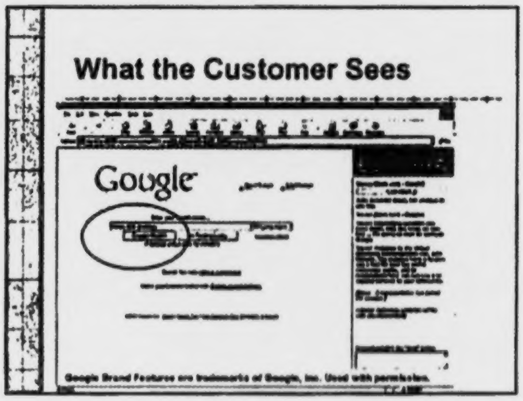

What the Customer Sees

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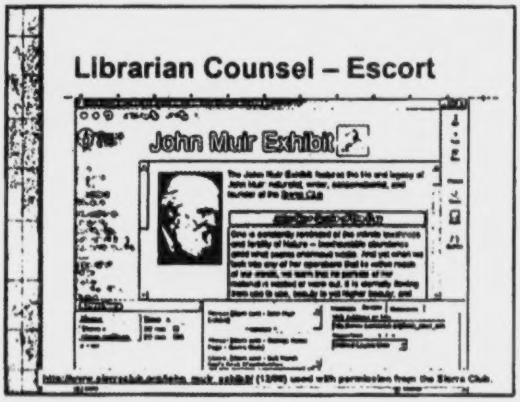
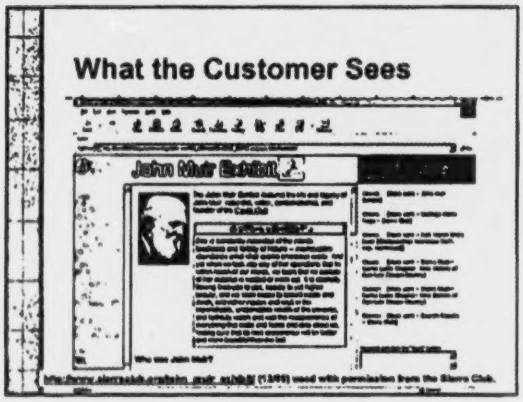


Librarian Counsel – Escort

John Muir Exhibit

http://www.sierraclub.org/john_muir_exhibit/ (12/03) used with permission from the Sierra Club.



What the Customer Sees

John Muir Exhibit
Who was John Muir?

http://www.sierraclub.org/john_muir_exhibit/ (12/03) used with permission from the Sierra Club.

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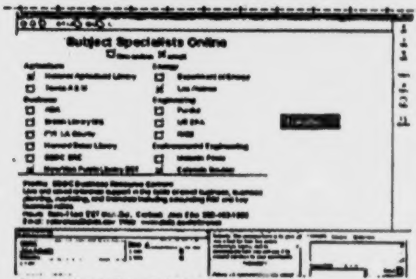
Librarian Counsel – Using the Reference Network



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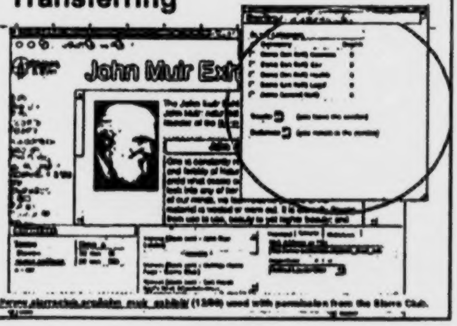
Librarian Counsel – Transferring

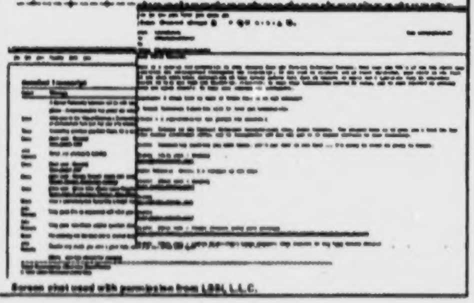


http://www.sierraclub.org/john_muir_exhibit/ (1999) used with permission from the Sierra Club.

Potential Network Services

- A marketplace of information services
  - After Hours Reference Services
  - Overflow Reference Services
  - Specialty Reference Services
  - Virtual Reference Services
  - Fee-based Services
- Many providers
  - Libraries
  - Library Consortia
  - Library Fee-based Services
  - Content Vendors
  - Association of Independent Information Professionals

Session Transcripts



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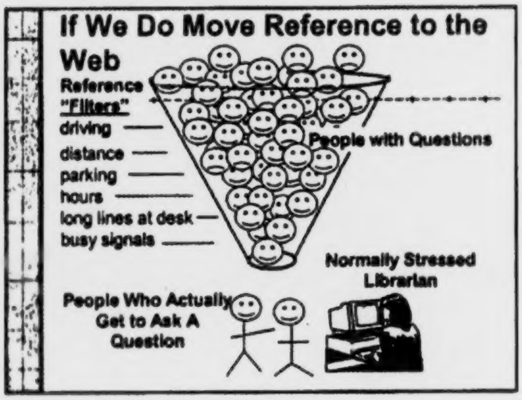
Issues

- Privacy
- Licensing
- Training
- Making Use of Data
- Economic Models
- Managing Potential Volume
- Re-inventing Reference



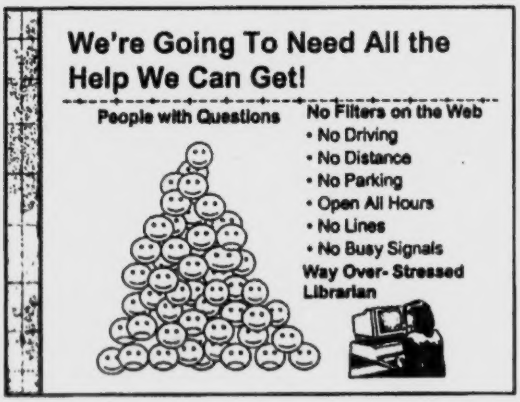
If We Do Move Reference to the Web

Reference "Filters"
- driving
- distance
- parking
- hours
- long lines at desk
- busy signals

People with Questions

Normally Stressed Librarian

People Who Actually Get to Ask A Question



We're Going To Need All the Help We Can Get!

People with Questions

No Filters on the Web
- No Driving
- No Distance
- No Parking
- Open All Hours
- No Lines
- No Busy Signals

Way Over- Stressed Librarian

Improving Reference Efficiency

- Self-help
- Tiered staffing
- Access to subject expertise
- Centralizing staff using call center model
  - Real Call Centers
  - Virtual Call Centers

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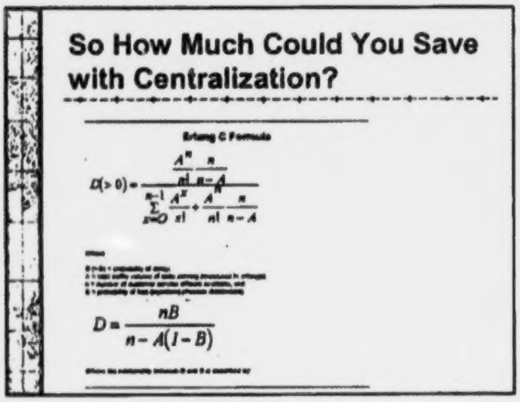
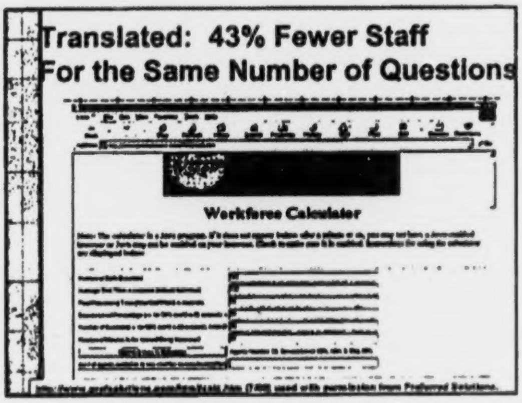


So How Much Could You Save with Centralization?

Erlang C Formula

$$P(>0)=\frac{\frac{A^{n}}{n!}\frac{n}{n-A}}{\sum_{x=0}^{n-1}\frac{A^{x}}{x!}+\frac{A^{n}}{n!}\frac{n}{n-A}}$$

$$D=\frac{nB}{n-A(1-B)}$$

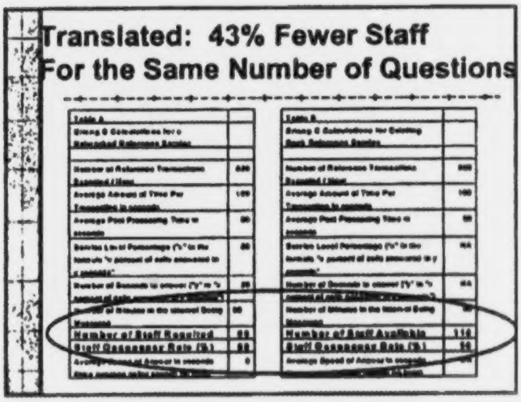


Translated: 43% Fewer Staff For the Same Number of Questions

Workforce Calculator

Translated: 43% Fewer Staff For the Same Number of Questions

Want To Try It At Home? Visit: http://www.prefsolutions.com/html/calc.htm



Translated: 43% Fewer Staff For the Same Number of Questions

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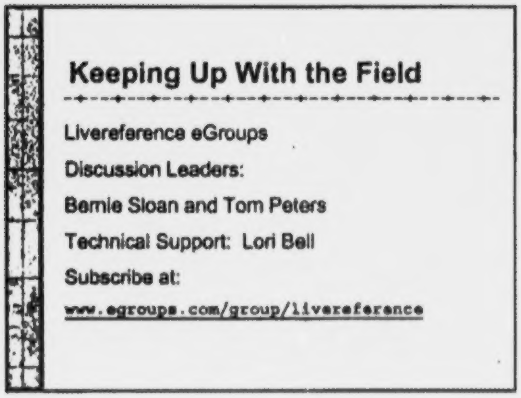


Keeping Up With the Field

Livereference eGroups

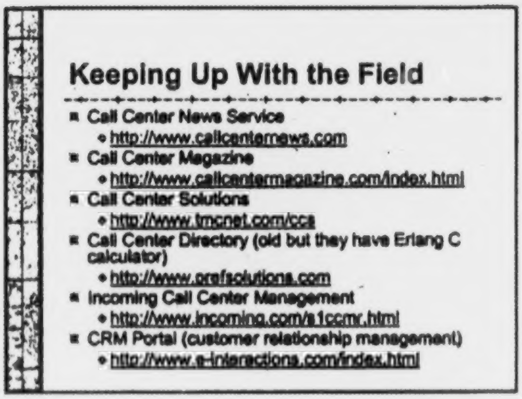
Discussion Leaders:

Bernie Sloan and Tom Peters

Technical Support: Lori Bell

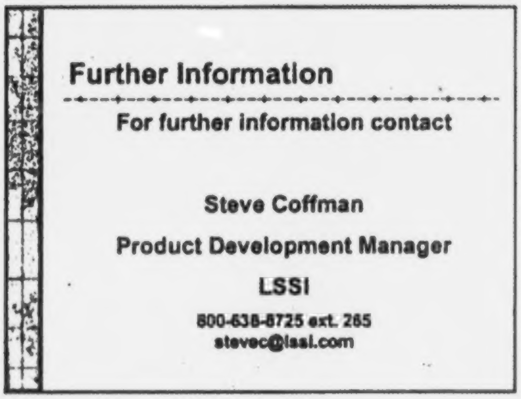
Subscribe at:

www.egroups.com/group/livereference



Keeping Up With the Field

- Call Center News Service
  - http://www.callcenternews.com
- Call Center Magazine
  - http://www.callcentermagazine.com/index.html
- Call Center Solutions
  - http://www.tmcnet.com/ccs
- Call Center Directory (old but they have Erlang C calculator)
  - http://www.orafsolutions.com
- Incoming Call Center Management
  - http://www.incoming.com/s1ccmr.html
- CRM Portal (customer relationship management)
  - http://www.e-interactions.com/index.html



Further Information

For further information contact

Steve Coffman

Product Development Manager

LSSI

800-638-8725 ext. 285
stevec@lssi.com

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Building a Virtual Reference Network

Susan McGlamery
Metropolitan Cooperative Library System

Presentation

Introduction

This presentation places Web contact software in the context of a cooperative digital reference network of libraries in Southern California. McGlamery discusses components and characteristics of this network and demonstrates the process for question-answering.

Building a Virtual Reference Network

Virtual Reference Desk Conference
October 2000

Components of the Network

Web contact center software

Tiered Reference

Subject expertise

Cooperation between libraries

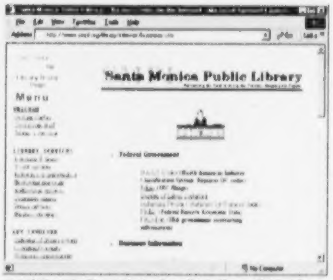
Web Contact Center Software

Communication:
- chat, e-mail, Voice Over IP (VOIP)

Collaboration:
- send URLs, Form Share, Follow Me

Referral:
- live or by e-mail

Live Reference on the Web


Santa Monica Public Library
Menu
Federal Government
Business Information

Screen shot used with permission from Santa Monica Public Library

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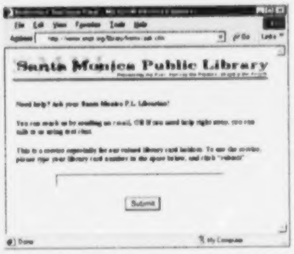
Authentication


Santa Monica Public Library
Submit

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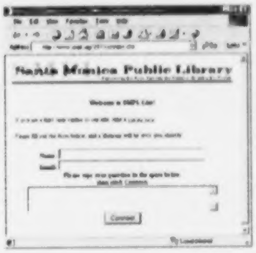
Live Chat


Santa Monica Public Library

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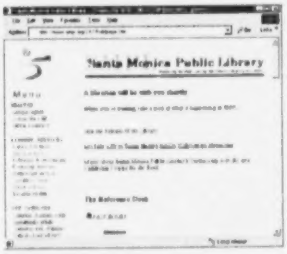
Pages on Hold


Santa Monica Public Library

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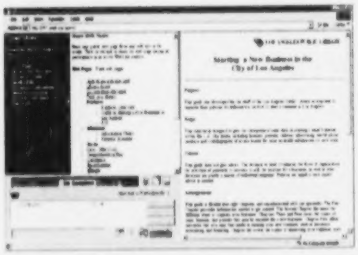
Scripts



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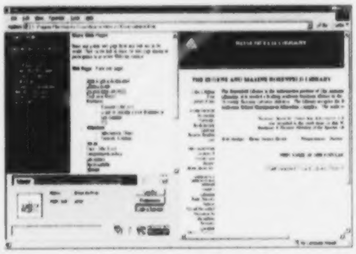
Referral



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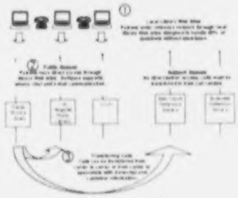
Referral Network



Subject Specialists

Metropolitan Cooperative Library System

Reference Center

Los Angeles Public Library FirstSource Database

Consumer Health

After-Hours Reference

Virtual staff, can be located anywhere

Answer questions from all participating libraries' patrons

Quick answer/Internet questions only

Referral to originating library for all others

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Tiered Service

- Quick Answer
  - library hours, location
  - opac or ILL help
  - ready reference
- Refer to originating library for all others
  - live reference
  - e-mail

---

http://www.247ref.org

For more information, contact
Susan McGlamery at

213-228-7568
smcglamery@mclsys.org

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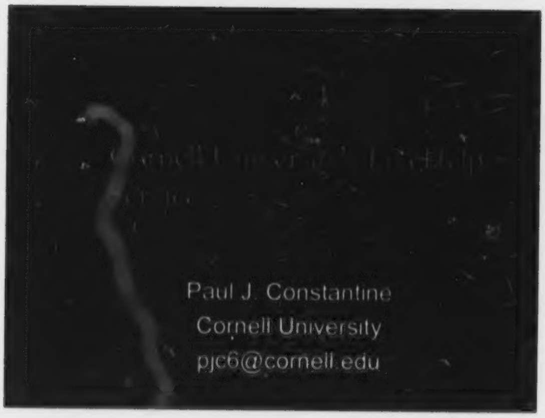
Cornell University's LiveHelp Service

Paul J. Constantine
Cornell University

Presentation

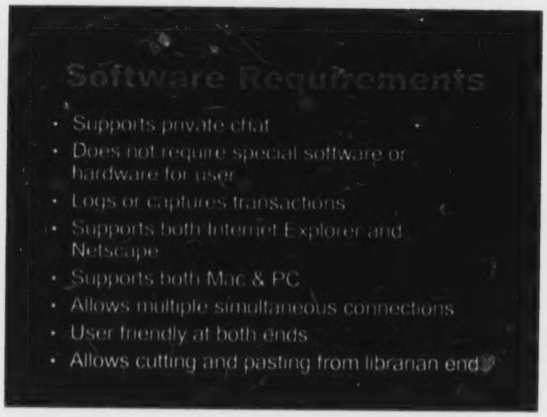
Introduction

Cornell University's LiveHelp service, launched in January 2000, provides live, interactive reference service over the Internet using commercially developed e-commerce software. The presentation outlines the goals of LiveHelp and describes the process used to design and implement the service. Cornell's experience using *LivePerson* is discussed and user and administrative features are demonstrated.



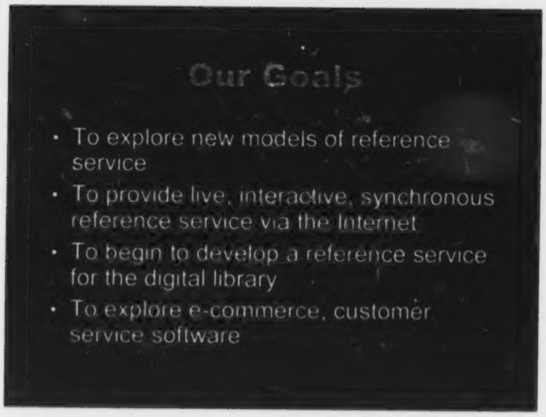
Cornell University's LiveHelp Service

Paul J. Constantine
Cornell University
pjc6@cornell.edu



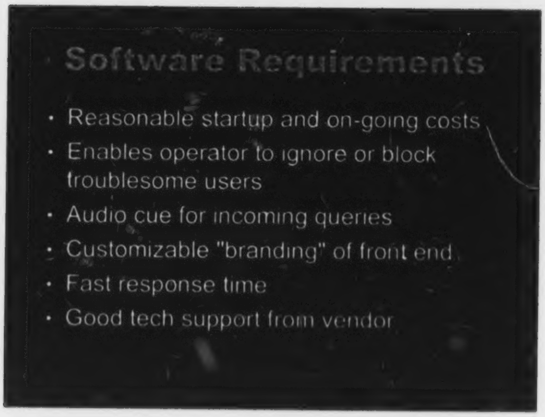
Software Requirements

- Supports private chat
- Does not require special software or hardware for user
- Logs or captures transactions
- Supports both Internet Explorer and Netscape
- Supports both Mac & PC
- Allows multiple simultaneous connections
- User friendly at both ends
- Allows cutting and pasting from librarian end



Our Goals

- To explore new models of reference service
- To provide live, interactive, synchronous reference service via the Internet
- To begin to develop a reference service for the digital library
- To explore e-commerce, customer service software



Software Requirements

- Reasonable startup and on-going costs
- Enables operator to ignore or block troublesome users
- Audio cue for incoming queries
- Customizable "branding" of front end
- Fast response time
- Good tech support from vendor

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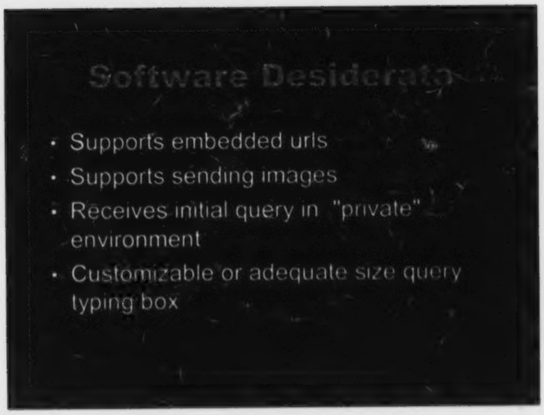
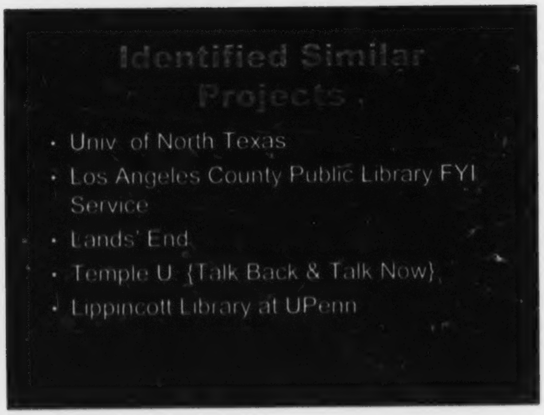


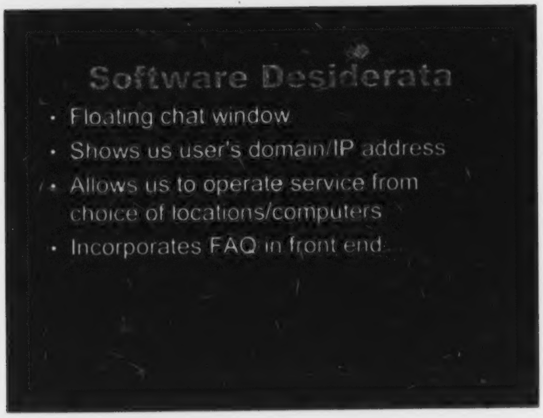
Software Desiderata

- Supports embedded urls
- Supports sending images
- Receives initial query in "private" environment
- Customizable or adequate size query typing box



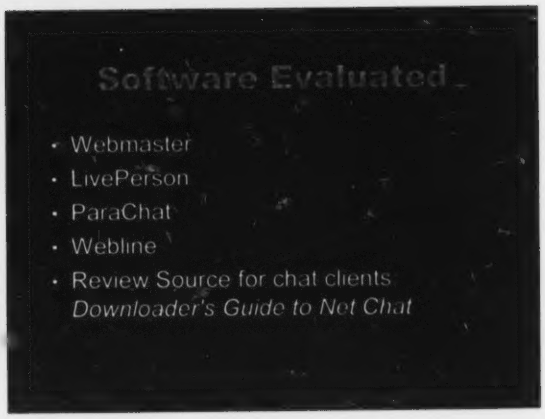
Identified Similar Projects

- Univ. of North Texas
- Los Angeles County Public Library FYI Service
- Lands' End
- Temple U. {Talk Back & Talk Now}
- Lippincott Library at UPenn



Software Desiderata

- Floating chat window
- Shows us user's domain/IP address
- Allows us to operate service from choice of locations/computers
- Incorporates FAQ in front end



Software Evaluated

- Webmaster
- LivePerson
- ParaChat
- Webline
- Review Source for chat clients *Downloader's Guide to Net Chat*

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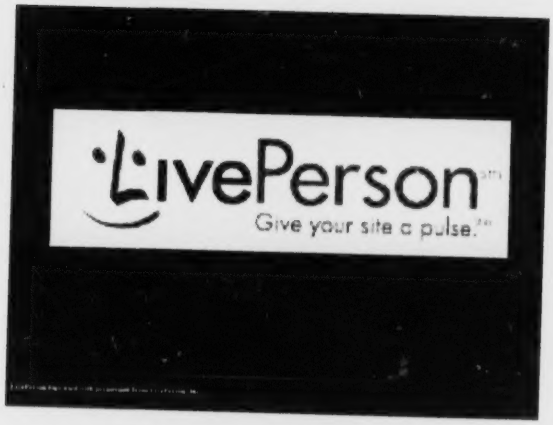
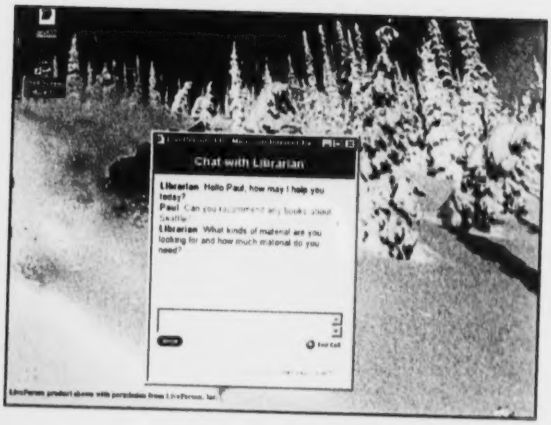
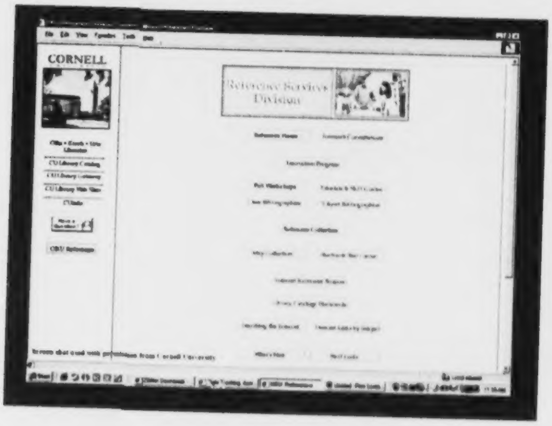

LivePerson℠
Give your site a pulse.℠

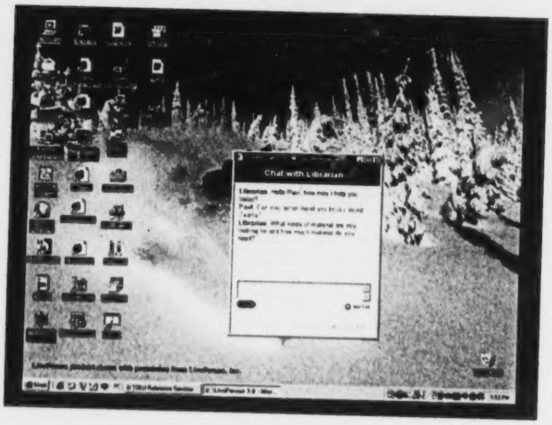

Chat with Librarian
End Call

Librarian Hello Paul, how may I help you today?
Paul Can you recommend any books about Seattle?
Librarian What kinds of material are you looking for and how much material do you need?

LivePerson product shown with permission from LivePerson, Inc.


File Edit View Favorites Tools Help
CORNELL
Reference Services Division
CU Library Catalog
CU Library Web Sites
CUinfo

Screen shot used with permission from Cornell University


Chat with Librarian

Librarian Hello Paul, how may I help you today?
Paul Can you recommend any books about Seattle?
Librarian What kinds of material are you looking for and how much material do you need?

LivePerson product shown with permission from LivePerson, Inc.

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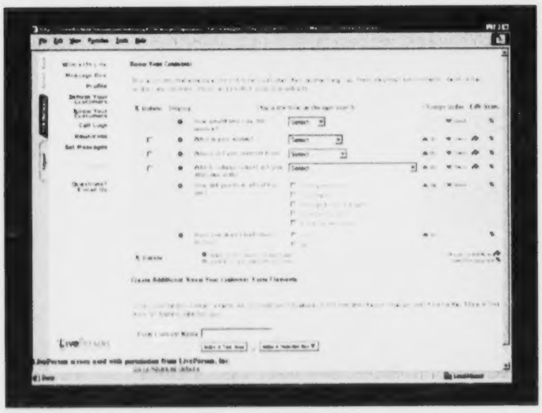
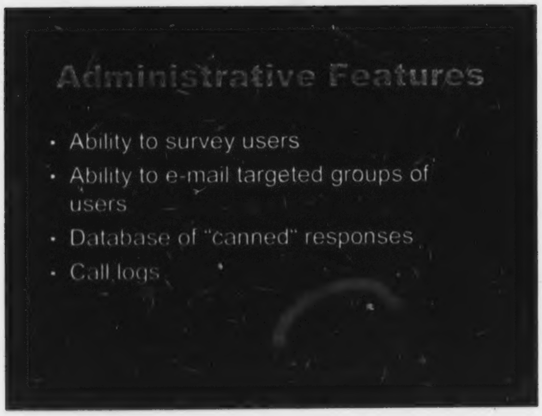
Preformatted Response Texts

LivePerson screen used with permission from LivePerson, Inc.



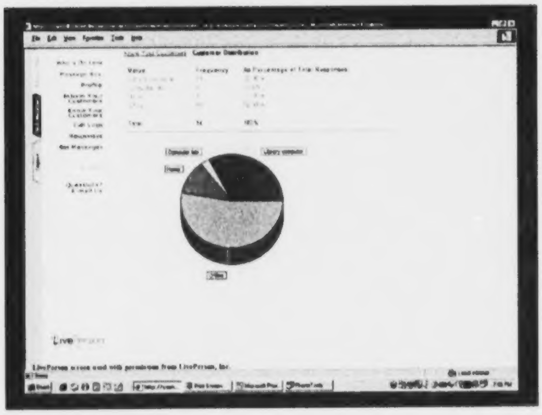
Call Logs
Questions?
E-mail Us
Select
Create Additional Know Your Customer Form Elements
LivePerson

LivePerson screen used with permission from LivePerson, Inc.



Administrative Features

- Ability to survey users
- Ability to e-mail targeted groups of users
- Database of "canned" responses
- Call logs



Customer Distribution
Value
Frequency
As Percentage of Total Responses
Total
LivePerson

LivePerson screen used with permission from LivePerson, Inc.

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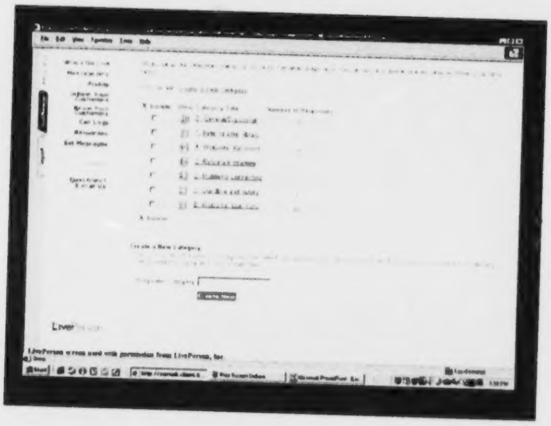
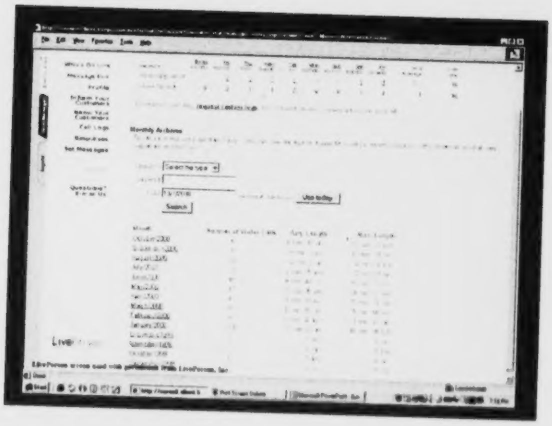
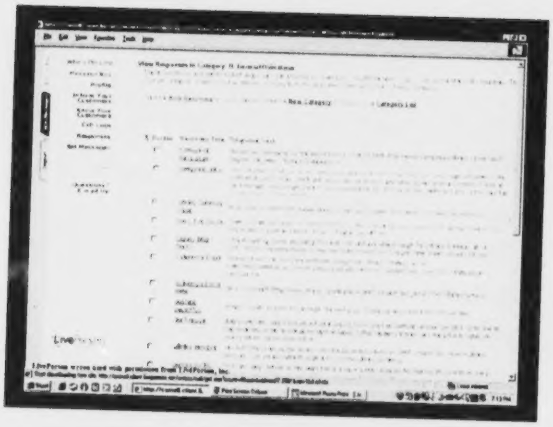


LivePerson screens used with permission from LivePerson, Inc.



LivePerson screens used with permission from LivePerson, Inc.



LivePerson screens used with permission from LivePerson, Inc.

LivePerson screens used with permission from LivePerson, Inc.

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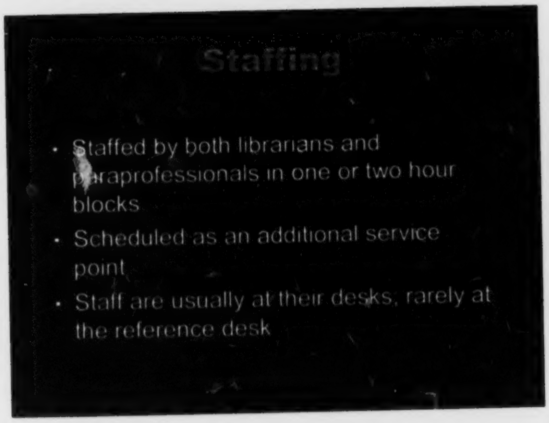
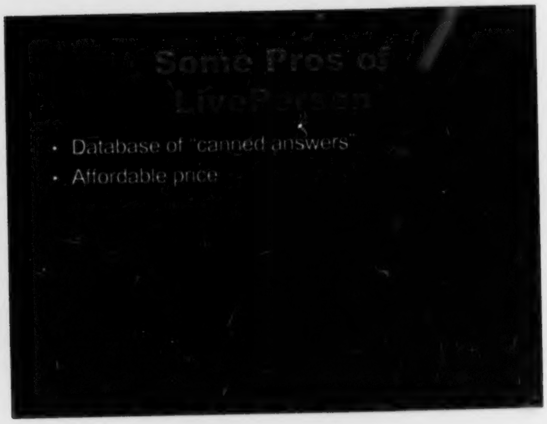


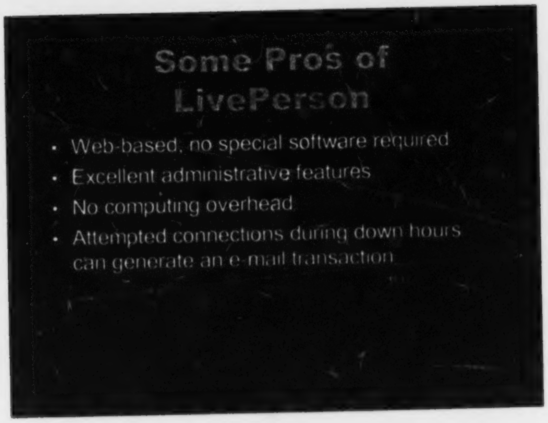
Staffing

- Staffed by both librarians and paraprofessionals in one or two hour blocks
- Scheduled as an additional service point
- Staff are usually at their desks, rarely at the reference desk



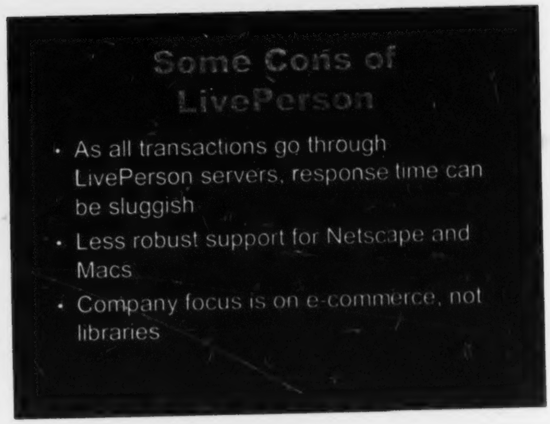
Some Pros of LivePerson

- Database of "canned answers"
- Affordable price



Some Pros of LivePerson

- Web-based, no special software required
- Excellent administrative features
- No computing overhead
- Attempted connections during down hours can generate an e-mail transaction



Some Cons of LivePerson

- As all transactions go through LivePerson servers, response time can be sluggish
- Less robust support for Netscape and Macs
- Company focus is on e-commerce, not libraries

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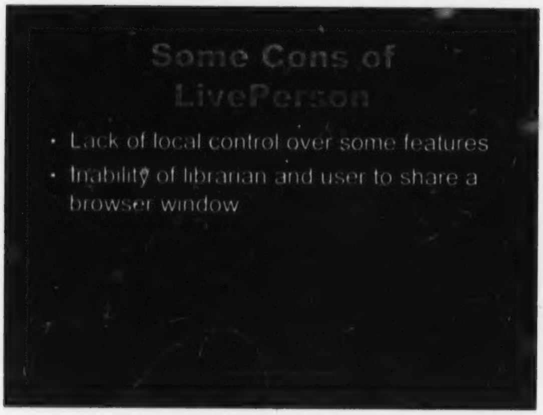
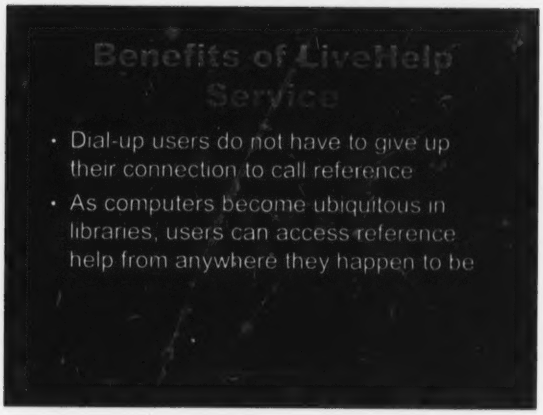


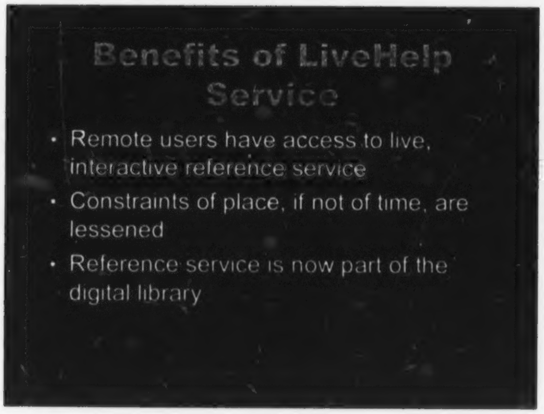
Some Cons of LivePerson

- Lack of local control over some features
- Inability of librarian and user to share a browser window



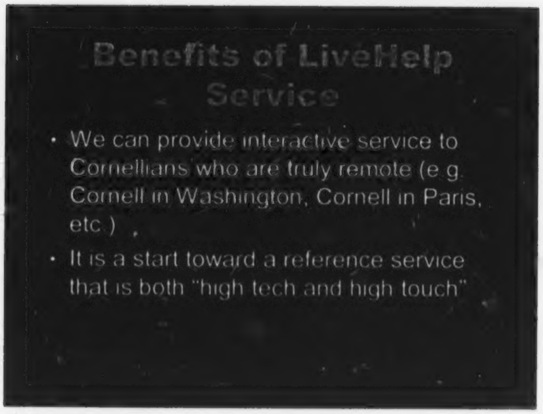
Benefits of LiveHelp Service

- Dial-up users do not have to give up their connection to call reference
- As computers become ubiquitous in libraries, users can access reference help from anywhere they happen to be



Benefits of LiveHelp Service

- Remote users have access to live, interactive reference service
- Constraints of place, if not of time, are lessened
- Reference service is now part of the digital library



Benefits of LiveHelp Service

- We can provide interactive service to Cornellians who are truly remote (e.g. Cornell in Washington, Cornell in Paris, etc.)
- It is a start toward a reference service that is both "high tech and high touch"

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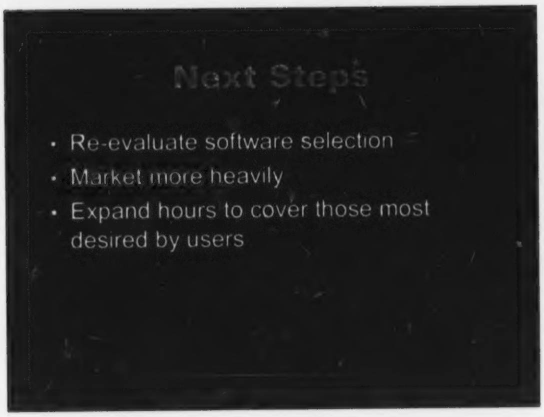
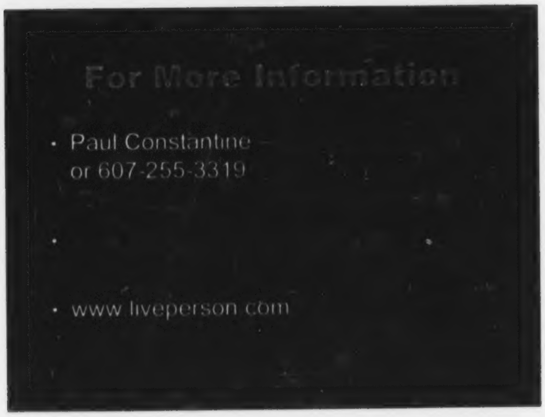


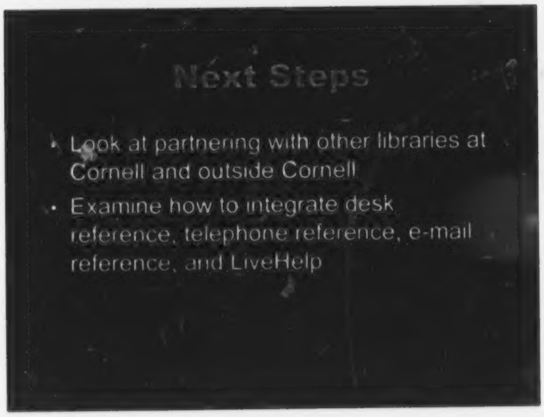
Next Steps

- Re-evaluate software selection
- Market more heavily
- Expand hours to cover those most desired by users



For More Information

- Paul Constantine –
  or 607-255-3319
-
- www.liveperson.com



Next Steps

- Look at partnering with other libraries at Cornell and outside Cornell
- Examine how to integrate desk reference, telephone reference, e-mail reference, and LiveHelp

The Use Of ICQ In Providing Real Time Reference Services

Joseph Yue
University Libraries, University of Colorado at Boulder

Abstract

While e-mail reference is one of the popular methods of providing assistance to remote users of library online resources, it does not allow a real-time reference interview. More and more Web retail companies have started providing real-time customer help lines, yet libraries do not always have the same financial resources to implement such technologies. The use of ICQ for reference and as office hour consultation in an academic library will be reported. Issues such as staffing, technical implementation, and marketing of services to specific user groups are also be addressed.

Introduction

This paper reports on an exploratory project that uses free chat software for real-time digital reference. The software is called ICQ from ICQ, Inc. and requires little technical or computer knowledge. In addition to a summary of the project, this paper will discuss different features of ICQ used to enhance digital reference interactions and issues related to implementing ICQ reference services. Possible uses of existing models and potential partnership outside of libraries will be briefly addressed.

The Project

It is important for librarians to pay close attention to the help-seeking behavior of users online. Reference services should be as accessible and convenient as possible. At the same time, it is not enough to assume the public knows of the value of reference service. Librarians need to aggressively promote what they can do, especially today when many people have the misconception that everything is on the Web and is free. Lipow describes the concept of digital reference in this way: "Rather than thinking of our users as remote, we should instead recognize that we are remote from our users" (1999, p. 51).

The goal of this exploratory project was to determine how reference librarians could reach out to remote users and provide real-time reference assistance as close to face-to-face interactions as possible using existing resources. The project was also the first step before a possible department-wide pilot project. Specifically, this project aimed at exploring the use of the free chat software, ICQ. A small-scale project (single institution) has its limitations, but the issues and problems encountered were general and fundamental. Thus they would be applicable to other real-time digital reference projects within the context of a single institution with limited staff time and financial resources. Furthermore, little has been written about the use of chat software, especially ICQ, as part of library services.[1]

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[1] Jan Zastrow (1999) outlines her use of ICQ for her information broker business.

Assumptions

Users can be grouped into two different categories: general remote library users and the target population in this project.

Before the popularity of remote access to online databases, library users had to be on site to use the resources. Reference desks were able to provide the assistance most users needed. However, as more and more resources are available on the Web (with or without access restrictions), reference desks have fallen short in fulfilling this role. Among library users in the Internet age, few come into the library to ask for help or call on the telephone. E-mail reference does not provide the synchronous service most users need nor the quality of service they are used to getting at the reference desk. Telephone reference is a possible solution, but few people have two phone lines or access to a network enabling them to call the library and use the Internet at the same time. In fact, at the author's library, most callers who request search assistance are faculty who are in their office and have the luxury of simultaneous digital (Internet) and analog (telephone) communication. It is important for the user and the librarian to view the same Web site or computer screen. Thus, for many libraries, the telephone is limited to ready reference purposes.

There are two assumptions about remote users of library resources. First, remote users have different needs fromthose in the library building. The second assumption is that the combination of e-mail and telephone reference is not fulfilling these needs because of their technological limitations. Archer and Cast (1999) point out that as needs change, reference service should evolve to suit new needs and take advantage of relevant technology in providing such service.

In targeting a new service to a sample of users, assumptions were considered such as the percentage of existing chat users and the interest in or need for reference help. These assumptions, though specific to each target population, should be considered in similar pilot projects.

With limited resources, the project focused on an existing group of library users who might already be familiar with online chat software or have basic experience with computers and feel ready to explore new software. Moreover, there are different programs to conduct online chat, such as Internet Relay Chat and ICQ. For the purpose of this project, ICQ was chosen because of its large existing user base and resources available to the author.

Since ICQ is widely used among high school students, it was assumed that there would be some ICQ users within the target freshman population, although there were no data available on the popularity of online chat among freshmen at the University of Colorado, Boulder. The service was offered to students in conjunction with library instruction in which students are expected to fully utilize library research concepts and databases in their assignments. The project helped highlight issues and concerns we might have in offering high quality digital reference service in real time using free software.

Setup and Testing

Before the service was introduced, the author tested ICQ's potential use and features for providing digital reference using a personal ICQ sign-up. Once the author was familiar with ICQ, a new ICQ number was set up so that information related to providing digital reference would be kept totally separate from personal information. A new ICQ number provided the opportunity to create a user profile that fits the purpose of this exploratory project. For example, users can locate the University of Colorado at Boulder digital reference ICQ number by searching the ICQ directory.

Each specific feature of potential use was tested out on the new ICQ account with the help of the author's friends who were also familiar with ICQ. Chat sessions were initiated at different times to test out system response rate. Different levels of computer knowledge on the part of potential users were simulated through role-playing sessions.

The new service was introduced to 250 students in spring semester 2000 in selected freshmen and sophomore level classes from the Communication Department and Student Academic Services Center writing classes. These classes were chosen for the project because of existing working relations with teaching faculty. Library instruction was integrated into these curricula, and ICQ was offered as one more way for students to contact the author for reference help in addition to e-mail, telephone, and regular office hours.

The author was available during regular office hours (Monday 2:30-3:30 P.M.) and in the evenings (until 10 or 11 P.M.) in the beginning of the project. After two-thirds of the semester was over, when deadlines for research assignments approached, the author's ICQ account was accessible around the clock and students were encouraged to leave an online or offline message when real-time assistance was not available or if a chat was in-session.

ICQ Features for Digital Reference

ICQ provides a few features that are particularly helpful in providing real-time reference service. One such feature is the indication of user availability and the options to customize messages being displayed under each availability condition (e.g., available, away, extended away, occupied, etc.). For example, when the librarian is occupied, ICQ will display a message that encourages users to leave a note or try back again. With offline messaging and e-mail features, users can indicate the best time to return their "call," or librarians can utilize the same setup for both real-time and e-mail reference.

To achieve quality reference service beyond e-mail or telephone reference, software is needed that allows multiple channels of synchronous communications. Using ICQ, users and librarians can surf the Web together simultaneously. With many online resources now available through the Web, librarians can send the Web site address of a specific screen to a user (e.g., a specific book record or the screen to start a search). In a similar fashion, users can easily send the Web site address to a librarian to show where they were searching and indicate problems seen on the screen. This feature is important because by toggling between two separate screens or adjusting the size of the Web browser and ICQ chat windows, librarians and users can surf the Web or search library resources together simultaneously. McGeach (1999) pointed out the advantage of remote application sharing and remote control software. In addition to the ability to share URLs, files can also be easily transferred between users.

Chat sessions also allow users to scroll back to earlier conversations in the same chat session so as to clarify or verify information and discussion. A transaction log of each chat session can be archived. This can serve at least two purposes: the first one is for research and the second is for the creation of a knowledge base. Data can be gathered with the consent of the user. Quality of service can also be analyzed for improvement. The author did not explore the searching capability of the archive and thus cannot comment on the ease or obstacles in utilizing this feature to create a collection of frequently asked questions.

Issues and Concerns

Software that is free to both library and target user populations is crucial to the accessibility of the new service. On a related issue, software user agreements with many restrictions will hinder the quality of service. Other important factors in the choice of software include availability on multiple computer platforms (e.g., ICQ is available in PC, Mac, Palm Computing), and self-guided installation for new users.

Privacy

The issue of privacy commanded a delicate balance on the part of the librarians. ICQ allows restriction of any chat request to only other authorized users. This seemed to be a good policy until the author discovered that there were problems receiving off-line message (messages sent to an ICQ user when the user is not online) with the new ICQ. The authorization process relies on requesting and granting authorization through a series of messages. When an ICQ account is off-line, it is not possible to grant authorization requests or establish chat sessions. To alleviate the problem, the account was logged on 24 hours a day, thus eliminating any off-line messages sent to the account.

By allowing all users to access the chat function, there was an increase in the amount of junk e-mail sent to the account from promoters using ICQ. While there was a feature to put any unwanted ICQ user on an "Ignore List," it proved to be a nuisance at times. ICQ does offer different levels of security and privacy, and it allows users to adjust those options at any time to suit one's specific needs.

The ICQ software is equipped with very simple instructions that allow new users to initiate a chat a few minutes after installation. It requires far less technical knowledge on the part of the user than MOO, yet offers more capabilities than e-mail and phone reference combined (Shaw, 1996). Yet, finding support when things do not work is a challenge in ICQ. There is so much information on the Web site that it is overwhelming. It does not have a well-organized knowledge base. The best strategy is to join other chats groups in ICQ for technical support.

Staffing

ICQ does not restrict users to one station. In other words, one can actually be at any computer connected to the Internet and still provide reference service using the same ICQ user number. The implication is that digital reference allows more flexible staffing possibilities. In a consortium, a group of librarians can provide real-time assistance across different time zones. When online chat programs are used within a single institution, patterns of use by remote users will influence staffing decisions. By working with database designers, network administrators, and systems librarians, one can best plan for the effective use of limited resources (Tenopir and Read, 2000).

Marketing/Promotion

It is helpful to identify computer and Internet use among the target group. For example, in this project, data became available towards the end of the semester that indicated few freshmen used online chat or are familiar with the concept. Although it may be possible to do a survey of online chat use in several large lecture classes, it may be more efficient to try partnering with other campus units that are interested in improving the technology skills of students. These might include academic departments moving towards greater integration of information technology into the curriculum and information technology services responsible for providing primary computer support to students and gathering data for new initiatives. By pooling resources and using a larger sample, collected data will be more meaningful and accurate.

Software and Technical Support vs. Reference Assistance

Real-time digital reference services that require users to install specific software or that require complex navigation will be ineffective. Although ICQ is relatively easy to use, remote library users who do not already chat online are not likely to install ICQ for this purpose. Librarians may also be hesitant to use it. Technical support and customization are unlikely with this or any free software. Librarians interested in using ICQ may not want to provide technical support for users.

Other Alternatives and Models

Alternatives

Some libraries have tried fee-based chat software that allows easy access to real-time digital reference service. One key advantage is the elimination of software installation responsibilities on the part of the library user. Instead, librarians rely upon system support staff to install and maintain the chat program.

In addition to chat, instant messaging programs are gaining popularity. While many instant messaging programs are not platform-specific, they are not as versatile as chat programs. For example, it is difficult to archive instant messages, and complete "chat" logs are not always available.

Models

Call centers and online customer service methods have impacted overall customer satisfaction and loyalty. There are different models of service offered and methods of integration in online customer service (Dineley & Snyder, 2000; Steul, 2000). While there are differences between the for-profit and non-profit worlds, librarians can learn from the private sector. In many cases, companies that just offer a Web presence do not have the resources to invest in the infrastructure to provide real-time customer support. Thus, they outsource this component to an outside company. This may be a viable solution for libraries. Consortium projects have been initiated, and even with current technology, it is only organization culture that forbids us to provide a true 24 hours a day/7 days a week real-time digital reference service. Any large-scale service project that crosses institution lines requires strong infrastructure in staff training and resource-sharing.

The growing number of trade articles and research papers on digital reference will be helpful in the development of future models. Aberg and Shahmehri (2000) conducted a study on the use of Web assistants and the importance of adaptability in these programs (including different communication style, different expectation or preference for amount and format of information, and the delicate balance between computer-based and human-based assistance).

At the Virtual Reference Desk 1999 Digital Reference Conference, Steve Coffman presented a model that screened each request and matched it to different levels of help. Collaborative Digital Reference Service (CDRS), a Library of Congress initiative, is creating a knowledge base of frequently asked questions as part of a self-help solution; this is a strategy used by commercial services as well. Some educational institutions engaged in distance learning have started to staff 24/7 help desks, and others have outsourced the provision of such service (Young, 2000). Unless librarians are ready to provide what Ann Lipow calls "after-my-library-hours-service" (Lipow, 1999, p.52) with little compensation, outsourcing to a group of librarians may be the best way to finance a true high quality 24/7 real-time digital reference service.

Conclusion

In an ideal world, we can deploy the technology we need to offer valuable service to our users. With funding shortages part of our daily lives, librarians can utilize free software and try to respond to new needs in a timely fashion. Through the exploration of different software, we can formulate a strategy that works for users and librarians. There are other like-minded librarians who have tried ICQ for digital reference. The next step is to gather their input and find out what works and what does not across all types of libraries. Results of such assessments will help us formulate a real-time digital reference service that is both user-friendly and sustainable.

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Lipow, A. G. (1999, August 1). "In your face" reference service. *Library Journal. 124,* 50-52.

McGeachin, R. B. (1999). Videoconferencing and remote application sharing for distant reference service. *The Reference Librarian, 65*, 51-60.

Shaw, E. (1996). Real-time reference in a MOO: Promise and problems [Online]. Available: http://www-personal.si.umich.edu/~ejshaw/research2.html [2000, May 10].

Steul, D. (2000, February). Humanizing your Web site through callback and chat. *Call Center Solution, 18,* 66-68. Retrieved May 29, 2000 from FirstSearch on-line database (ABI/Inform), 49795532 1521-0774.

Tenopir, C. & Read, E. (2000). Patterns of database use in academic libraries. *College & Research Libraries, 61,* 234-246.

Young, J. (2000, May 26). Distance education transforms help desks into '24-7' operations. *Chronicle of Higher Education,* A39 [Online]. Available: http://chronicle.com/weekly/v46/i38/38a04901.htm [2000, May 26].

Zastrow, J. (1999). ICQ for info pros. *Online, 22*(3), 37-38.

Virtual Reference Desk Incubator: A Demo

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Virtual Reference Desk, Information Institute of Syracuse

Abstract

The Virtual Reference Desk Incubator software was designed for start-up AskA services that accept, route and answer questions via the Web. This paper describes the "front end" for the public view, the "enhanced view" for experts answering questions and the "back end" for the administrators of a service. Version 1 of the Incubator is available free to non-profit services. Customization costs are borne by individual services. The Virtual Reference Desk Project offers training with the software and server space at no cost.

VRD Incubator Software

Public View

The Incubator allows patrons asking questions to browse the AskA service's Web site for resources and archived questions in a subject directory or search the site by keyword. In order to register to ask questions, patrons must complete a form (see Figure 5). Later, they can retrieve their answers in a "My Questions" section (see Figure 6-7). If a patron has also provided an e-mail address, an e-mail message will be sent when questions are answered to alert the patron that an answer is waiting on the site.

A sidebar section provides highlighted links that appear on all pages. The administrator maintains the content and linking for the site. Experts can also access the public view.

Figure 1 illustrates the organization of the categories on the main page. This page is created and edited by the administrator using a user-friendly tool in the administrative view.

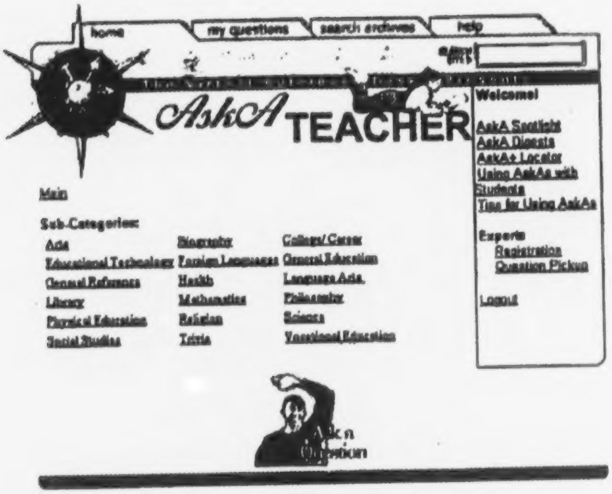
home
my questions
search archives
help
AskA TEACHER
Welcome!
AskA Spotlight
AskA Digests
AskA+ Locator
Using AskAs with Students
Tips for Using AskAs
Experts
Registration
Question Pickup
Logout
Main
Sub-Categories:
Arts
Educational Technology
General Reference
Library
Physical Education
Social Studies
Biography
Foreign Languages
Health
Mathematics
Religion
Trivia
College/Career
General Education
Language Arts
Philosophy
Science
Vocational Education
Ask a Question

Fig. 1. Public view: main page.

Within each category on the main page are sub-categories (Figure 2) created by the administrator according to the needs of the audience.

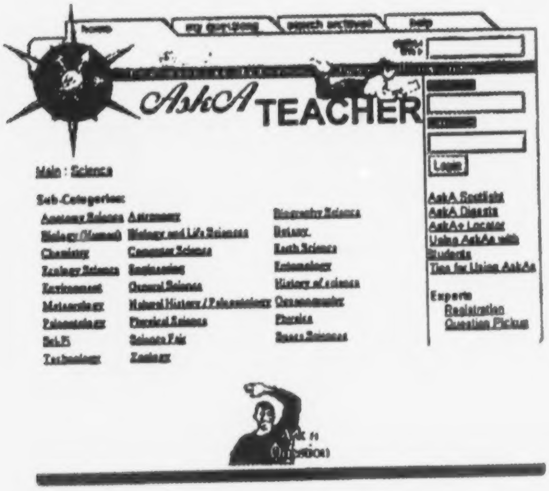
home
my questions
search archives
help
AskA TEACHER
Login
AskA Spotlight
AskA Digests
AskA+ Locator
Using AskAs with Students
Tips for Using AskAs
Experts
Registration
Question Pickup
Main : Science
Sub-Categories:
Anatomy Science
Biology (Human)
Chemistry
Ecology Science
Environment
Meteorology
Paleontology
Sci-Fi
Technology
Astronomy
Biology and Life Sciences
Computer Science
Engineering
General Science
Natural History / Paleontology
Physical Science
Science Fair
Zoology
Biography Science
Botany
Earth Science
Entomology
History of science
Oceanography
Physics
Space Science
Ask a Question

Fig. 2. Public view: categories.

Within each sub-category are two tabs: resources and archived questions. Editing in each section is easily done in the administrative view. The resources section may be used to list Web sites or other types of resources. The resources appearing in Figure 3 are AskA services related to the sub-category "oceanography."

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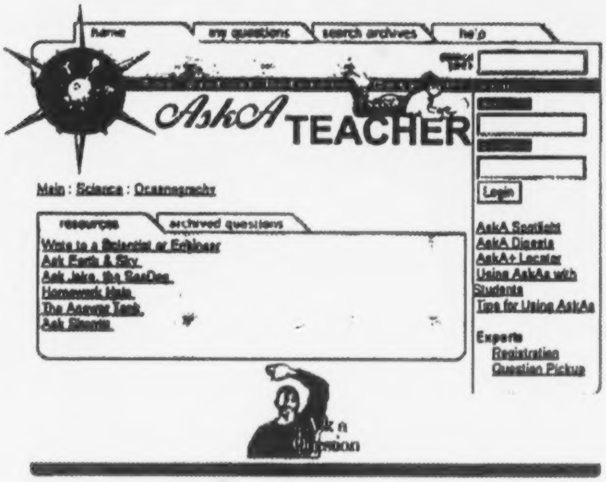
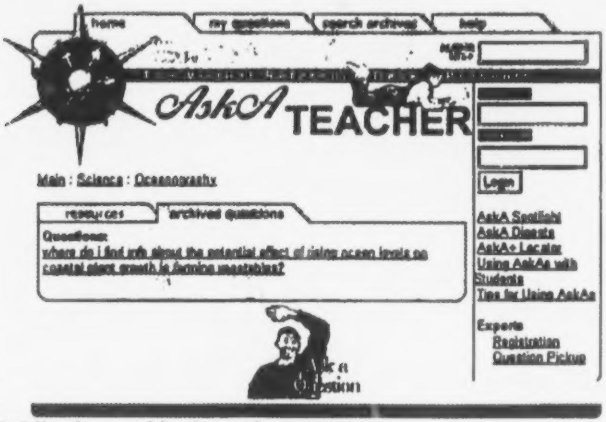

home
my questions
search archives
help
AskA TEACHER
Main : Science : Oceanography
resources
archived questions
Write to a Scientist or Engineer
Ask Earth & Sky
Ask Jake, the SeaDog
Homework Help
The Answer Tank
Ask Shamu
Login
AskA Spotlight
AskA Digests
AskA+ Locator
Using AskAs with Students
Tips for Using AskAs
Experts
Registration
Question Pickup
Ask a Question

Fig. 3. Public view: resources.

The archived questions collection (Figure 4) includes questions from the database of previously answered questions. Each entry in the archived questions tab points to the corresponding answer archived in the database.


home
my questions
search archives
help
AskA TEACHER
Main : Science : Oceanography
resources
archived questions
Login
AskA Spotlight
AskA Digests
AskA+ Locator
Using AskAs with Students
Tips for Using AskAs
Experts
Registration
Question Pickup
Ask a Question

Questions:
where do i find info about the potential effect of rising ocean levels on coastal plant growth ie farming vegetables?

Fig. 4. Public view: archived question.

Registered Patron View

As previously mentioned, patrons who wish to submit questions to the service must register (Figure 5). Only first name (or nickname) and grade level are posted on the public view when the answer is added to the database. Patrons may also include an e-mail address if they wish to receive notification when an answer is ready at the My Questions section of the site.

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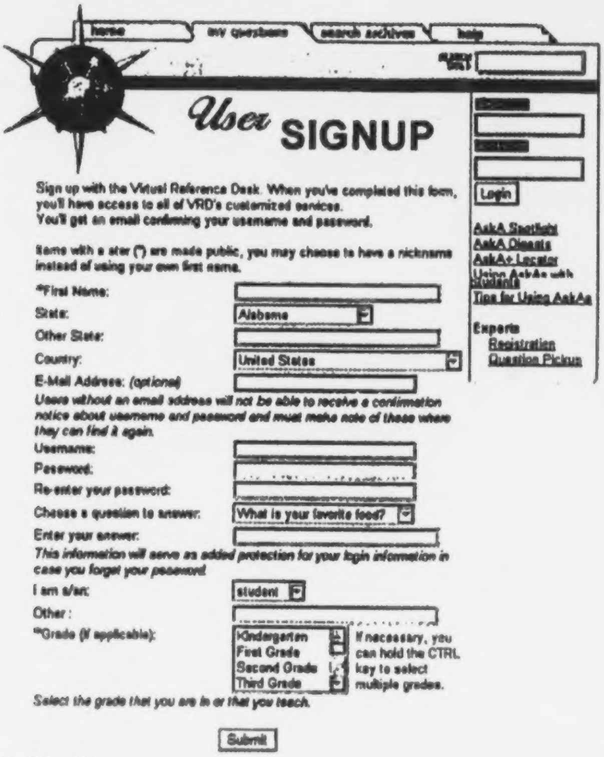

home
my questions
search archives
help
Login
AskA Spotlight
AskA Digests
AskA+ Locator
Using AskAs with Students
Tips for Using AskAs
Experts
Registration
Question Pickup
User SIGNUP
Submit

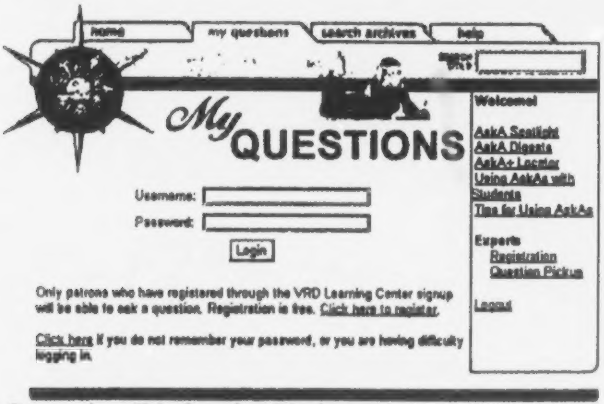
Sign up with the Virtual Reference Desk. When you've completed this form, you'll have access to all of VRD's customized services.
You'll get an email confirming your username and password.

Items with a star (*) are made public, you may choose to have a nickname instead of using your own first name.

*First Name:
State: Alabama
Other State:
Country: United States
E-Mail Address: *(optional)*
Users without an email address will not be able to receive a confirmation notice about username and password and must make note of these where they can find it again.
Username:
Password:
Re-enter your password:
Choose a question to answer: What is your favorite food?
Enter your answer:
This information will serve as added protection for your login information in case you forget your password.
I am a/an: student
Other :
*Grade (if applicable): Kindergarten, First Grade, Second Grade, Third Grade
If necessary, you can hold the CTRL key to select multiple grades.
Select the grade that you are in or that you teach.

Fig. 5. User registration.

When the patron wants to retrieve an answer to a question on the "My Questions" page, he or she must log in (Figure 6). If the patron forgets his or her password, there is an option to have it e-mailed if an address was provided.


home
my questions
search archives
help
My QUESTIONS
Welcome!
AskA Spotlight
AskA Digests
AskA+ Locator
Using AskAs with Students
Tips for Using AskAs
Experts
Registration
Question Pickup
Logout
Login

Username:
Password:

Only patrons who have registered through the VRD Learning Center signup will be able to ask a question. Registration is free. Click here to register.

Click here if you do not remember your password, or you are having difficulty logging in.

Fig. 6. Patron view: "My Questions" login.

Once logged in, the patron can view all the past questions asked under that account. Unanswered questions are included with a note stating no answer is available yet (Figure 7).

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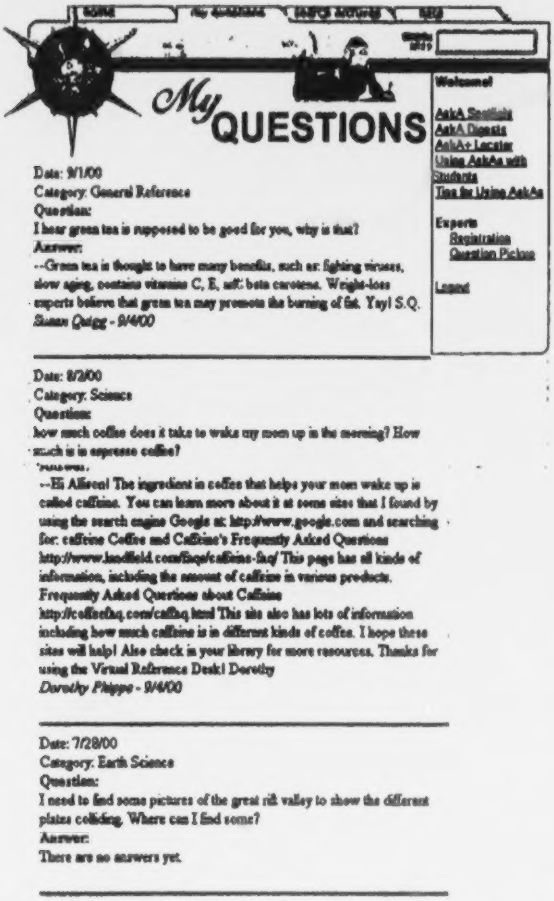

Date: 9/1/00
Category: General Reference
Question:
I hear green tea is supposed to be good for you, why is that?
Answer:
--Green tea is thought to have many benefits, such as: fighting viruses, slow aging, contains vitamins C, E, and beta carotene. Weight-loss experts believe that green tea may promote the burning of fat. Yay! S.Q.
Susan Quigg - 9/4/00

Date: 8/2/00
Category: Science
Question:
how much coffee does it take to wake my mom up in the morning? How much is in espresso coffee?
Answer:
--Hi Allison! The ingredient in coffee that helps your mom wake up is called caffeine. You can learn more about it at some sites that I found by using the search engine Google at: http://www.google.com and searching for: caffeine Coffee and Caffeine's Frequently Asked Questions http://www.landfield.com/faqs/caffeine-faq/ This page has all kinds of information, including the amount of caffeine in various products. Frequently Asked Questions about Caffeine http://coffeefaq.com/caffaq.html This site also has lots of information including how much caffeine is in different kinds of coffee. I hope these sites will help! Also check in your library for more resources. Thanks for using the Virtual Reference Desk! Dorothy
Dorothy Phipps - 9/4/00

Date: 7/28/00
Category: Earth Science
Question:
I need to find some pictures of the great rift valley to show the different plates colliding. Where can I find some?
Answer:
There are no answers yet.

Fig. 7. My Questions archive.

Expert View

Experts (individuals who answer patron questions) are permitted to log in via the public view but are not allowed the full range of administrative permissions. First-time experts register through the sign up form in the public view (Figure 8). On this form, experts can select the categories in which they wish to accept questions (e.g., arts, science, etc.). The administrator must approve experts before they may log in to the Question Pickup section.

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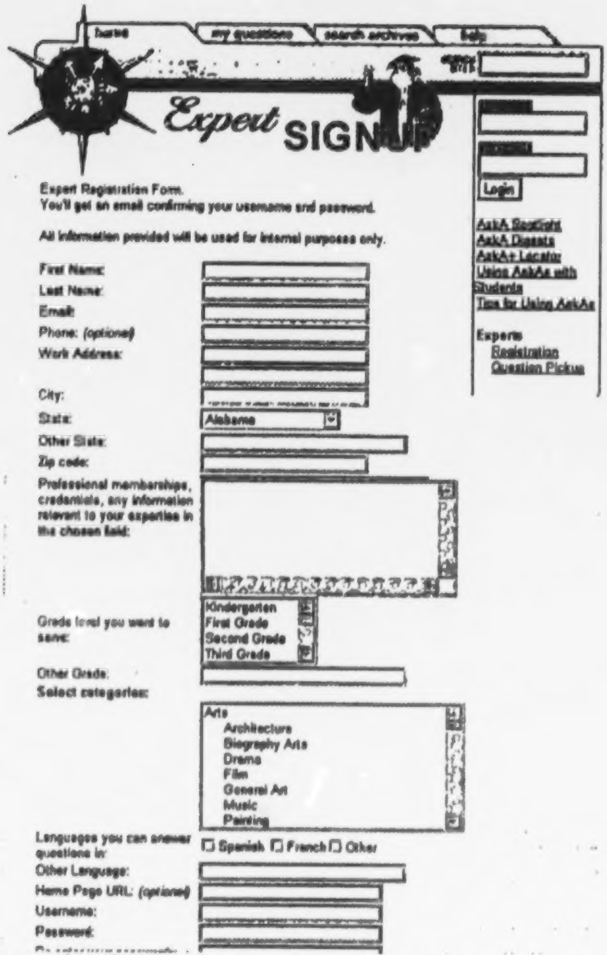
home
my questions
search archives
help
Expert SIGNUP
Login
AskA Spotlight
AskA Digests
AskA+ Locator
Using AskAs with Students
Tips for Using AskAs
Experts
Registration
Question Pickup

Expert Registration Form.
You'll get an email confirming your username and password.

All information provided will be used for internal purposes only.

First Name:
Last Name:
Email:
Phone: *(optional)*
Work Address:
City:
State: Alabama
Other State:
Zip code:
Professional memberships, credentials, any information relevant to your expertise in the chosen field:
Grade level you want to serve: Kindergarten, First Grade, Second Grade, Third Grade
Other Grade:
Select categories: Arts, Architecture, Biography Arts, Drama, Film, General Art, Music, Painting
Languages you can answer questions in: ☐ Spanish ☐ French ☐ Other
Other Language:
Home Page URL: *(optional)*
Username:
Password:

Fig. 8. Expert registration.

Registered experts log in by entering the Question Pickup area (Figure 9). If there are any questions in the queue to be answered in an expert's subject area, the questions will appear. The following example shows questions in social studies, general science, and astronomy. The expert can then select a question to answer.

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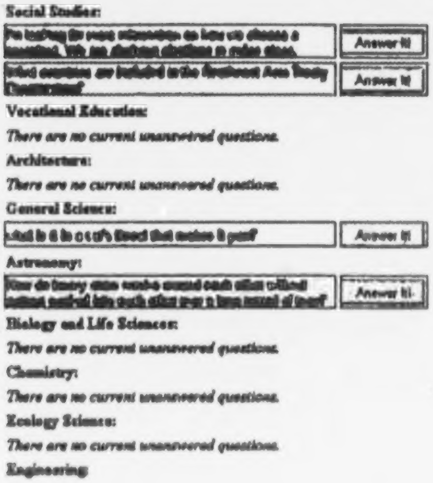

Social Studies:

Answer It!
Answer It!

Vocational Education:

There are no current unanswered questions.

Architecture:

There are no current unanswered questions.

General Science:

Answer It!

Astronomy:

Answer It!

Biology and Life Sciences:

There are no current unanswered questions.

Chemistry:

There are no current unanswered questions.

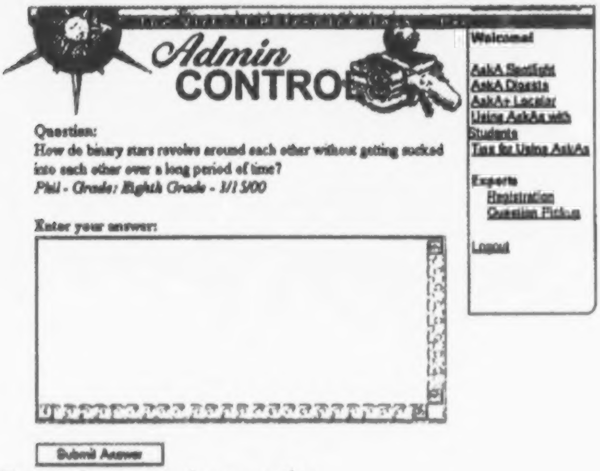
Ecology Science:

There are no current unanswered questions.

Engineering

Fig. 9. Expert view: questions to answer.

The expert uses the screen shown in Figure 10 to compose an answer to the selected question. Once the answer is typed in and submitted, the patron receives an e-mail message saying an answer is waiting. The question and answer pair become part of the database to be searched and appears on the archived questions tab for that category.


Admin
CONTROL
Welcome!
AskA Spotlight
AskA Digests
AskA+ Locator
Using AskAs with Students
Tips for Using AskAs
Experts
Registration
Question Pickup
Logout

Question:

How do binary stars revolve around each other without getting sucked into each other over a long period of time?

Phil - Grade: Eighth Grade - 3/15/00

Enter your answer:

Submit Answer

Fig. 10. Expert view: answering a question.

Administration View

There is a dynamic administrative tool that controls all the linking, content, categories, routing, editing and other functions (Figure 11). This section is only available to administrators via a password-protected login and a hidden login page.

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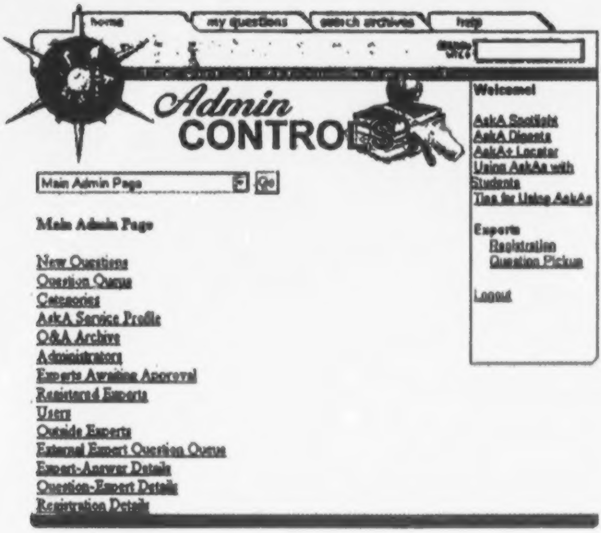
home
my questions
search archives
help
Admin
CONTROLS
Main Admin Page
Go
Main Admin Page
New Questions
Question Queue
Categories
AskA Service Profile
Q&A Archive
Administrators
Experts Awaiting Approval
Registered Experts
Users
Outside Experts
External Expert Question Queue
Expert-Answer Details
Question-Expert Details
Registration Details
Welcome!
AskA Spotlight
AskA Digests
AskA+ Locator
Using AskAs with Students
Tips for Using AskAs
Experts
Registration
Question Pickup
Logout

Fig. 11. Administrative tool.

The tools available are:

New Questions - Administrators can view the new questions and sort by subject or by date. Options include edit, keep, send, and delete. "Edit" allows administrators to change a category and subject heading as well as edit the question. Administrators can then "keep" the question internally for a local group or "send" it to an external group. Administrators can navigate through the questions by using the next and previous questions buttons.

Question Queue - These are questions that are kept internally. They will show up on the screen for an internal expert who has selected that category.

Categories - Administrators can edit, add, or delete categories, topics and subtopics.

AskA Service Profile - Administrators can add, edit, and delete profiles of AskA services (this function can be adapted depending upon the needs of the service).

Q & A Archive – In addition to actual questions and answers going through the system on an ongoing basis, administrators can also add entries here by filling in a question and an answer and then submitting the information. Editing is also available.

Administrators – This function allows administrators to add, edit, or delete administrators to the system.

Experts Awaiting Approval – Here, administrators can edit categories, view information, and delete or approve experts. When "approve" is selected, the administrator is taken to the registered experts page.

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Registered Experts - Choices are edit categories, view information, and delete experts.

Users - Administrators can edit or delete user accounts.

Outside Experts – Options are to edit information (by going to "view info"), deleting an expert's name, or adding experts (at the bottom of the page).

External Expert Question Queue - This area is for experts who are outside of the system. Options are: Question Options, Mail Question, and Keep Question (for an internal expert). Under Question Options, choices include: Return question to "New Questions," keep this question internally, move the question to a different queue (i.e., change it to a different external expert), mail the question, edit the question text, or delete the question.

Expert-Answer Details - Administrators can view the expert ID, expert's name, number of questions answered, and under question details, view the questions and answers for all that expert's previously answered questions.

Question-Expert Details - Administrators can view the question ID, date, question, expert who answered it, and the answer.

Registration Details - Administrators can add, edit or delete categories. They can edit user registration information and the white side bar information by changing or adding menu names and links.

Contact Information

Virtual Reference Desk
http://vrd.org
vrd@vrd.org

621 Skytop Rd. Suite 160
Syracuse, NY 13244

1-800-464-9107 (phone)
1-315-443-5448 (fax)

The Question Board

David Ward
University of Illinois Undergraduate Library

Presentation

Introduction

How does fabric softener make your clothes soft? Was Sam the Butcher (Alice's stud muffin from "The Brady Bunch") Magilla Gorilla's voice? While many students toil long nights at the library researching traditional term paper assignments, students at the University of Illinois' Undergraduate Library have long pursued more esoteric knowledge, courtesy of an anonymous reference service known as the Question Board (QB). This service allows students to submit their questions via paper or e-mail and then view their answers on a paper or electronic "board." QB provides a forum for the library staff to answer some of life's tougher and more mysterious questions, while at the same time introducing undergraduate students to the library's reference services and collections.

This presentation traces the history and development of this reference tool, from its inception in the early seventies, through its entrance into the electronic age in 1997 to its current state. It explains the technological underpinnings that have given this virtual reference tool life on the Web, from both staff and user points of view, and includes some sample ASP and Visual Basic scripts that are used to access the online archive of previously answered questions. The presentation also includes a description of the Web interface that students can use to ask questions; sample student questions are included throughout the presentation. Finally, it explains how QB functions as a public relations tool for the library and an online gateway to the library's other reference services.

? ?

The Question Board

Presented by
David Ward
University of Illinois at Urbana-Champaign
dh-ward@uiuc.edu

"Facets of Digital Reference"
October 16th-17th, 2000
Seattle, Washington

? ?

- Background and History
- Technological Backbone
- Reception and Role in the Library

? ?

Where did Grape Nuts Get its Name?

? ?

Background

- What is QB?
  - Anonymous (non-confrontational) form
  - http://www.library.uiuc.edu/ugl/qb/
- How does it work?
  - Questions submitted online or in paper
  - Answered by library school graduate students
  - Answers posted to paper board or Web site

? ?

History

- Started circa 1973 (paper bulletin-board)
- DB2 and Word Perfect files started ~1989
- Converted to Microsoft Access/SQL 1997
- Made Web-accessible 1997

? ?

Does chewing gum really stay in your stomach for 7 years when you swallow it?

? ?

Technological Backbone

- Staff Interface - Microsoft Access
  - Data Entry Form (Figure 1)
  - Reports (Figure 2)

? ?

Technological Backbone

- Links to SQL Database
  - Linked Tables (Figure 3: SQL Keyword Table) (Figure 4: SQL QB Table)
  - Updating (Figure 5: Access Queries)
  - Keyword Macro (Figure 6: Access Module Code)

Technological Backbone

- **Patron Interface - The Web**
  - **Demo** : http://www.library.uiuc.edu/ugl/qb/
  - **Search vs. Browse modes**
  - **HTML, ASP, and VBscript** (Sample Script - Figure 7: QB ASP Code)

How does fabric softener make your clothes soft?

Reception and Role within the Library

- Student Uses
  - Diversion / Procrastination
  - Non-Threatening Source of Information
  - Entertainment

Reception and Role within the Library

- Common Types of Questions
  - Campus and University of Illinois History
  - Celebrities
  - Movies
  - Sex / Relationships
  - Drugs
  - Personal Problems
  - Library-Related Issues

Reception and Role within the Library

- Advertisement for Reference Services
  - Promotes the Undergraduate Library Mission
  - Accepts All Questions (non-judgmental)
  - Highlights Reference Collection
  - Generates Articles in Local Press

Reception and Role within the Library

- Problems/Issues
  - Workload
  - Turnaround Time
  - No Reference Interview
  - Not all Questions Have an Answer

Implications and Future Directions

- Online questions : 23% of total in 97-98. 56% in 99-00
- "Gateway Drug" (brings users to the library)
- Portability of Database Technology
- Banner Advertising
  - Example: www.askjeeves.com

Bibliography

- Ma, W., and J. C. Wright. (1998) QB Online: How an old-fashioned question board went electronic. *College and Research Libraries News, 59*(10), 772-774

- Pittman, D. (1987) The Question Board. *College and Research Libraries News, 48*(6), 327-330.

PARLREF: Digitizing the Reference Request Process

Kate Whitridge and Margo Jeske
Information and Documentation Branch, Library of Parliament, Canada

Abstract

This paper features PARLREF, the intranet-based automated inquiry management system used by the Library of Parliament. It outlines efforts to automate the library's workflow process and develop substantive question and answer repositories. The authors discuss how the library is moving towards a bilingual corporate knowledge management environment for research and reference professionals through PARLEF.

Introduction

The Library of Parliament, established at Confederation in 1867, offers the range of professional and personalized services that Parliament needs for responding to the challenges of the information society. The library provides information, documentation, and research and analysis services to 105 Senators and 301 Members of the House of Commons. Information about Parliament and visitor and education services are also provided to the general public.

Each year, the library's Public Service Division handles over 140,000 information and documentation requests with very tight deadlines for parliamentary clients and for the general public. Requests are received at seven different locations; in this distributed service environment, an electronic solution for sharing information on client requests is of vital importance. Intranet technology offers the additional opportunity to develop request forms that the clients may submit directly from their desktops.

The library began looking for an automated system for tracking and managing these requests with Axcom Texto (Famic) in 1995. In 1996, it was decided that the PARLREF system must be a secure, bilingual, intranet-based workflow and information management tool, complying with software and platform standards in place for the library and the House of Commons. WorkLogic.com Corporation was chosen as the developer in 1997.

PARLREF

PARLREF operates as an online request system that supports the recording of client requests; assignment of questions to appropriate staff; division of requests among different sections of the library; and monitoring of question progress through receipt, assigning, and response. The inquiry-recording, tracking and related components are available to staff through the library's institutional intranet site, while request submission functionality is available to authorized clients through the parliamentary intranet. The client submission forms permit parliamentary clients to transmit their requests securely from their desktops, during and outside regular hours, and a link through the library's Web-based catalogue enables them to request books or articles.

To preserve strict confidentiality, PARLREF has three levels of security. Use of the PARLREF Web site is restricted to those who have a valid network user name and access to the parliamentary intranet. Furthermore, to access PARLREF, the user's name must be entered in PARLREF's user database. PARLREF authenticates network users against its database, and if unsuccessful, users have the opportunity to log on with a specific PARLREF user name and password. Then, within the PARLREF application, there are three user levels: clients have a basic level, allowing them to only create and submit their own requests; library staff have a working level, allowing them to create and manage requests; and managers and the PARLREF team have a third level of access, allowing them to also manage staff workload and produce statistical reports.

The PARLREF system consists of three modules (Figure 1): PARLREF itself, where requests are created, distributed and managed; OrgSite, the database for user and client information; and, DocuSite, the electronic document management system. While PARLREF has its origins in a help desk request management application, it has been substantively customized for a distributive reference desk, and some development work has been done to customize the DocuSite software. A fourth module for schedule management is under consideration, and will assist in the assignment of requests by supplying information on staff availability.

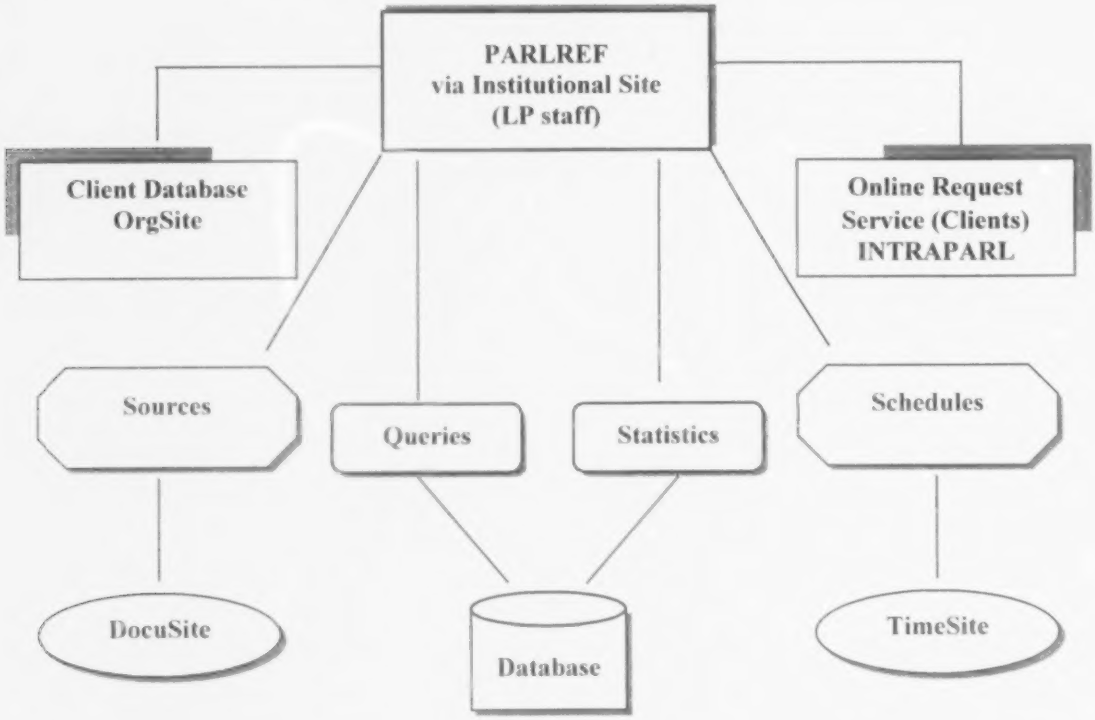
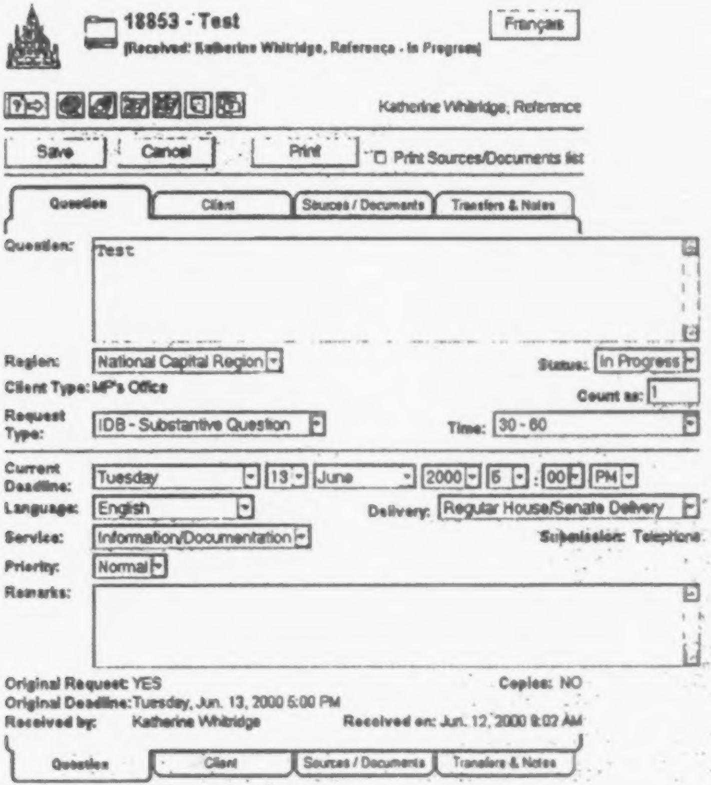

PARLREF
via Institutional Site
(LP staff)
Client Database
OrgSite
Online Request
Service (Clients)
INTRAPARL
Sources
Queries
Statistics
Schedules
DocuSite
Database
TimeSite

Fig. 1. Structure of PARLREF.

Forms

Incoming requests are recorded in PARLREF's front end. Requests are entered on three forms or tabs: Question, Client, and Sources/Documents. A fourth tab called Transfers & Notes, available in the Management Tool, lists all transactions related to existing requests as they are processed by library staff. The question form (Figure 2) has profiles that are customized to the particular type of service offered by the library (reference, research, general public information, and document requests). Both question and client forms have certain mandatory fields, and a mixture of fields that are free-text or have predefined lists of values (with defaults where acceptable).



18853 - Test
[Received: Katherine Whitridge, Reference - In Progress]

Katherine Whitridge, Reference

Question: Test

Region: National Capital Region

Status: In Progress

Client Type: MP's Office

Count as: 1

Request Type: IDB - Substantive Question

Time: 30 - 60

Current Deadline: Tuesday 13 June 2000 5 : 00 PM

Language: English

Delivery: Regular House/Senate Delivery

Service: Information/Documentation

Submission: Telephone

Priority: Normal

Remarks:

Original Request: YES

Copies: NO

Original Deadline: Tuesday, Jun. 13, 2000 5:00 PM

Received by: Katherine Whitridge

Received on: Jun. 12, 2000 8:02 AM

Fig. 2. PARLREF question form.

The client form (Figure 3) is quite flexible; the client database may be searched for parliamentary clients, and the retrieved data may be revised or new data entered on a blank client form. A field for modifications on this form identifies whether the request's client form contains data that needs to be verified. Flagged requests can be retrieved, the information checked, and the necessary changes made to client records in the OrgSite database.

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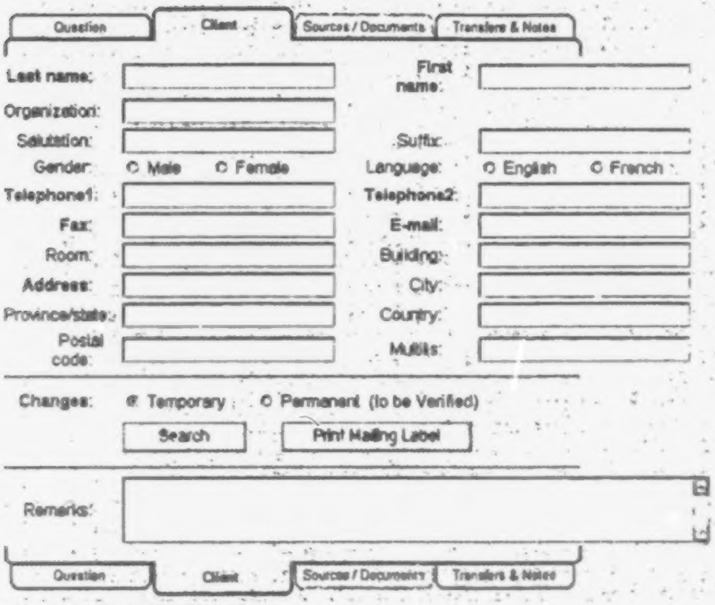
Question
Client
Sources / Documents
Transfers & Notes
Last name:
First name:
Organization:
Salutation:
Suffix:
Gender:
○ Male
○ Female
Language:
○ English
○ French
Telephone1:
Telephone2:
Fax:
E-mail:
Room:
Building:
Address:
City:
Province/state:
Country:
Postal code:
Mullis:
Changes:
● Temporary
○ Permanent (to be Verified)
Search
Print Mailing Label
Remarks:
Question
Client
Sources / Documents
Transfers & Notes

Fig. 3. PARLREF client form.

Document Management System

Through its integrated document management system, DocuSite, PARLREF allows staff to:

- associate electronic documents with particular information requests,
- distribute online information files,
- share electronic documents frequently consulted by staff or provided to clients.

DocuSite operates as an online document publishing and management portal, with all access via the Web browser. Electronic documents are linked to specific requests on a request's sources/documents form. Supporting documents received by fax or mail can be scanned and attached to requests - a particularly useful feature when these requests are then divided among staff across different divisions or at diverse locations.

Documents uploaded to DocuSite are stored in collections and can be retrieved by collection or subjects within those collections, or by searching. In addition to the collection of request-supporting documentation, DocuSite collections include FAQs prepared by staff, common or current reports (full-text where permissible or brief abstracts for print-only versions of "hot" documents), and pamphlets, kits and lists related to Parliament.

Procedures for Client Use

Parliamentary clients of the library may submit their requests using the Intranet Online Request Service (IORS) forms or request a document using a link from the library's Web catalogue. Clients select the library service that they require and enter their

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inquiry on the corresponding request form: Information/Reference, Research/Analysis, or Borrow/Copy Document. The catalogue interface transfers the document data from the catalogue record into the Borrow/Copy Document request form. These IORS request forms are based on the principal service forms accessible in the staff version of PARLREF, with the addition of simple instructions.

Before clients submit their requests, their contact information from the OrgSite database is displayed, and they may identify any changes to be made to this information. On submission, they are given a reference number which they may use in subsequent communication with the library. The clients may return to the intranet or to their catalogue search, or may submit another request while they are still logged onto the system. As illustrated in Figure 4, there are provisions for clients to log on or request access to PARLREF in the event that their network user information is not immediately recognized by PARLREF.

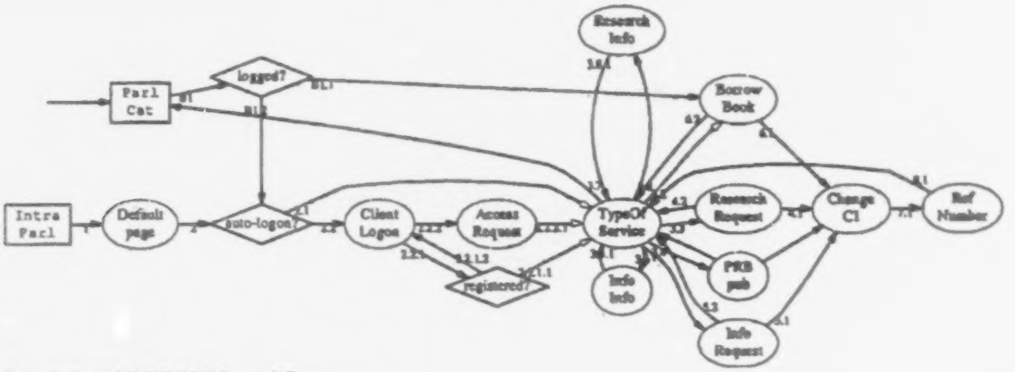
Research Info
Parl Cat
logged?
Borrow Book
Intra Parl
Default page
auto-logon?
Client Logon
Access Request
TypeOf Service
Research Request
Change CI
Ref Number
registered?
Info Info
PRB pub
Info Request

Fig. 4. PARLREF IORS workflow.

Management of Requests and Responses

In PARLREF's Management Tool (Figure 5), staff can query the database of existing requests and track requests from creation to completion. Staff can access their requests by the status of request, or can search by client, keyword, dates, or combinations of various fields. Managers have additional rights to search the database for the requests assigned to specific employees or sections and have access to a report generator that produces statistics on requests, clients, and documents.

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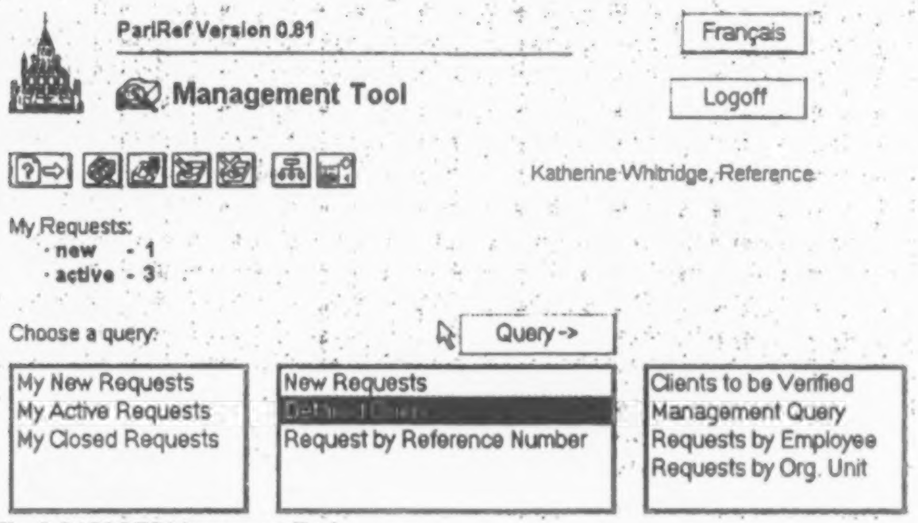
ParlRef Version 0.81
Français
Management Tool
Logoff
Choose a query:
Query ->
My New Requests
My Active Requests
My Closed Requests
New Requests
Divided Query
Request by Reference Number
Clients to be Verified
Management Query
Requests by Employee
Requests by Org. Unit

Katherine Whitridge, Reference

My Requests:
- **new** - 1
- **active** - 3

Fig. 5. PARLREF Management Tool.

Requests can be transferred or copied to various library organizational units. PARLREF enables sharing of requests among reference librarians, technicians, and research officers, and allows for coordination of internal requests to the collections unit for acquisition of a government document or new book. A search on divided requests will display a hierarchical list of the requests.

The PARLREF request database is a valuable knowledge base that supports reference work as a dynamic and interactive process where questions and answers require collaborative expertise among individuals interacting with information. The system permits a widening of the view of information to a thoughtflow process, with the ability to track key intelligence. For complex or difficult reference or research requests, staff are encouraged to specify the resources that they used to respond to the question, recording print resources in a free-text field on the question form, and attaching electronic documents or representations of the documents to the sources/documents form. Staff can search for requests by keywords from the field where the question is described in detail, identify similar requests, and consult the sources used by other staff members or retrieve documents from DocuSITE.

PARLREF's request receipt and assigning workflow reduces active duplication of effort. For instance, the staff who respond to the telephone line create requests, and then a member of the PARLREF team assigns those requests to appropriate staff. The PARLREF team member is in a position to view all requests received at all service points, can pinpoint trends in key new issues as they emerge, and can coordinate the assignment of questions for the most thorough response and efficient use of the library's resources.

Planning and Implementation

In 1999, the two librarians working part-time on the PARLREF project team were joined by two more librarians. Team members' responsibilities for the various system

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components were defined, and an accelerated schedule of workflow analysis, specification design for the customized software, and preparation for training and implementation of the PARLREF system commenced. The library's PARLREF team works closely with WorkLogic.com Corporation in development activity, and is assisted by two programmer/analysts from the House of Commons who also administer the system. Initial training and testing by a focus group of librarians and technicians in the Public Service Division took place in early 1999, followed by further intense system development.

Phase I of the implementation of PARLREF began in October 1999 with the replacement of a tracking system in Information Services that was not Y2K-compliant. The PARLREF team librarians were assigned full-time to the project. Attention was given to the infrastructure required for PARLREF, including typing tutorial software, a telephone monitoring system, and headsets. In November 1999, Information Services staff were trained on the new system and entered requests in both tracking systems for a week; the results were evaluated by the PARLREF team. On December 1, PARLREF was implemented in Information Services. Within six weeks, staff use of the new system had become instinctive. The library's video service now also uses PARLREF. Further training for initial user groups, in the form of meeting briefings or in-house mini-sessions, has been designed to accompany major upgrades to PARLREF. After six months of use, over 19,000 requests had been created; the volume will magnify substantially as other reference services come online.

Ongoing support for the system is provided by PARLREF team librarians, and an e-mail service account facilitates the communication of questions and problems from PARLREF staff users to the team. Support duties are shared among team members, with problems related to specific system components referred to the appropriate member. The e-mail account also supports the sharing of documentation and provides a development forum for the team.

In the spring, as Phase II neared (i.e., implementation of PARLREF for full reference services), the PARLREF team and managers of the Public Service Division began a series of planning and policy meetings; these meetings were designed to ensure that documentation on PARLREF could be augmented with policies and operating procedures. Several librarians and library technicians were identified to participate as PARLREF team members on a limited basis.

The next phase in the library's implementation process will involve the Parliamentary Research Branch. A group of researchers has been selected and will become active in the customization and preparations for extension of the system to the complex services provided by that branch.

Ongoing projects include identifying, and customizing as necessary, scheduling software to support the request assignment process, and developing the archiving functionality for the PARLREF databases. In September, the team will begin planning for Version 2 of PARLREF's central component. Among the items considered for future development are:

- more powerful methods of handling requests that have multiple request types,
- redesign of some of the screens for ease of use,
- more sophisticated Boolean searching by keywords,

- additional sorting keys for request lists.

Conclusion

The library has developed a very powerful and flexible automated request tracking system with PARLREF and has begun the work of creating a valuable knowledge base of requests. In the coming year, the library will be temporarily vacating its beautiful, historical home for a period of renovation. PARLREF will play an integral role in ensuring that the transition is seamless to the library's clients and will greatly facilitate request-related information-sharing among staff at many service points and across the library's organizational structure.

Note

All screen shots of the PARLREF system are used with permission from the Library of Parliament, Canada.

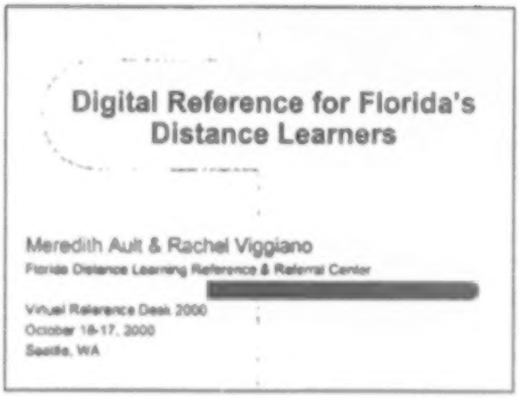
Digital Reference for Florida's Distance Learners

Meredith Ault and Rachel Viggiano
Florida Distance Learning Reference & Referral Center

Presentation

Introduction

This presentation addresses issues of staffing and workflow at a statewide digital reference service and the challenges associated with providing electronic reference support to distance learners. Other topics include the evolution and evaluation of the Florida Distance Learning Reference & Referral Center's Web site, Web forms, and services.



Digital Reference for Florida's Distance Learners

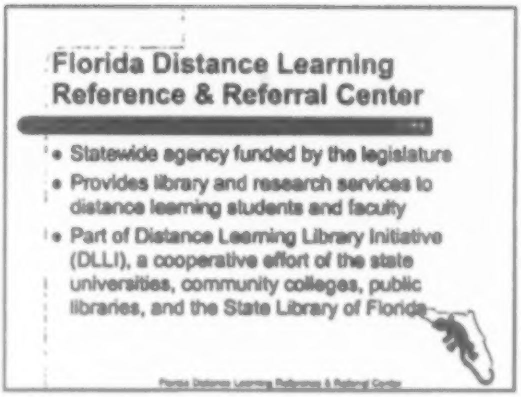
Meredith Ault & Rachel Viggiano

Florida Distance Learning Reference & Referral Center

Virtual Reference Desk 2000

October 16-17, 2000

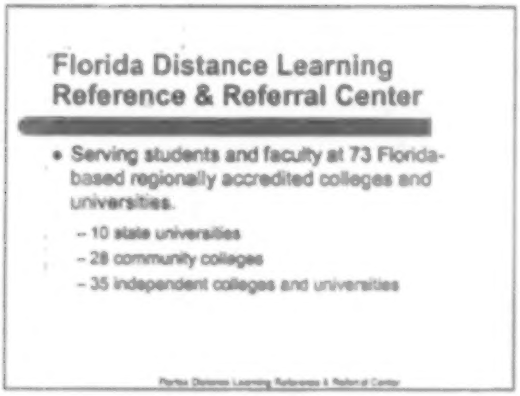
Seattle, WA



Florida Distance Learning Reference & Referral Center

- Statewide agency funded by the legislature
- Provides library and research services to distance learning students and faculty
- Part of Distance Learning Library Initiative (DLLI), a cooperative effort of the state universities, community colleges, public libraries, and the State Library of Florida

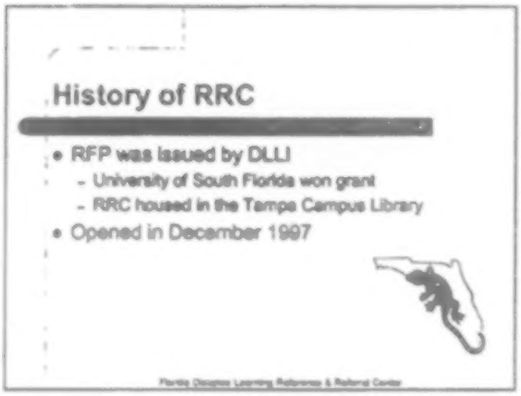
Florida Distance Learning Reference & Referral Center



Florida Distance Learning Reference & Referral Center

- Serving students and faculty at 73 Florida-based regionally accredited colleges and universities.
  - – 10 state universities
  - – 28 community colleges
  - – 35 independent colleges and universities

Florida Distance Learning Reference & Referral Center



History of RRC

- RFP was issued by DLLI
  - University of South Florida won grant
  - RRC housed in the Tampa Campus Library
- Opened in December 1997

Florida Distance Learning Reference & Referral Center

http://www.rrc.usf.edu/pres/vrd/index.htm

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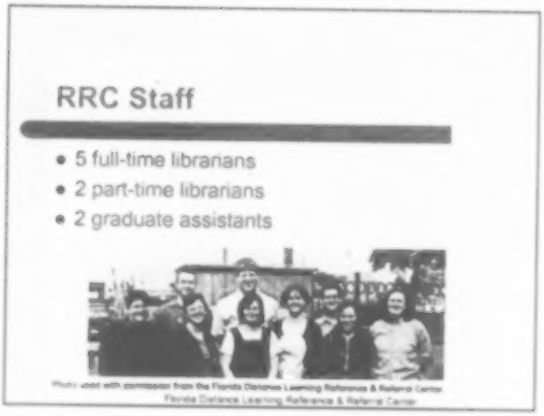
RRC Hours

- Seven days a week
- Over 100 hours per week

Monday-Thursday	7:30 am - 1:00 am
Friday	7:30 am - 9:00 pm
Saturday	10:00 am - 8:00 pm
Sunday	Noon - 1:00 am

Florida Distance Learning Reference & Referral Center



RRC Staff

- 5 full-time librarians
- 2 part-time librarians
- 2 graduate assistants

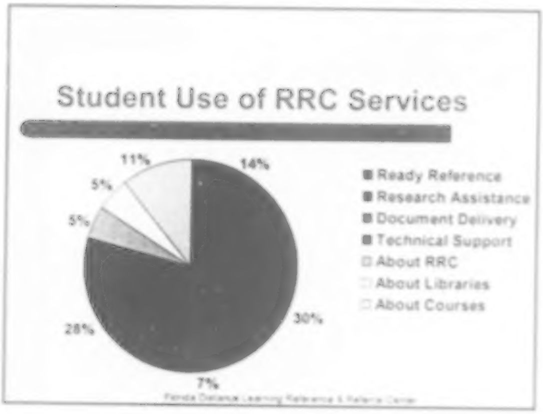
Photo used with permission from the Florida Distance Learning Reference & Referral Center

Florida Distance Learning Reference & Referral Center

RRC Services For Students

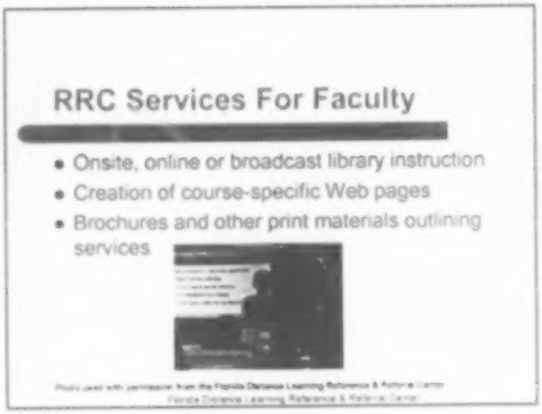
- Ready reference
- Research assistance
- Basic technical support
- Assistance with locating materials at local academic and public libraries
- Referral to information about distance learning programs and courses

Florida Distance Learning Reference & Referral Center



Student Use of RRC Services

Florida Distance Learning Reference & Referral Center

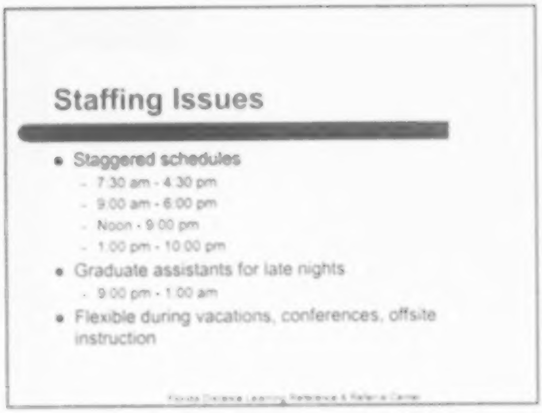


RRC Services For Faculty

- Onsite, online or broadcast library instruction
- Creation of course-specific Web pages
- Brochures and other print materials outlining services

Photo used with permission from the Florida Distance Learning Reference & Referral Center

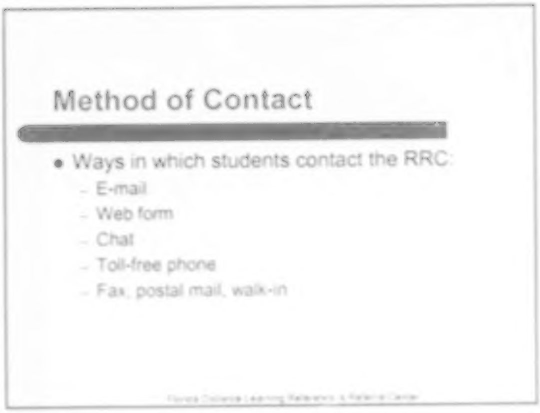
Florida Distance Learning Reference & Referral Center



Staffing Issues

- Staggered schedules
  - 7:30 am - 4:30 pm
  - 9:00 am - 6:00 pm
  - Noon - 9:00 pm
  - 1:00 pm - 10:00 pm
- Graduate assistants for late nights
  - 9:00 pm - 1:00 am
- Flexible during vacations, conferences, offsite instruction

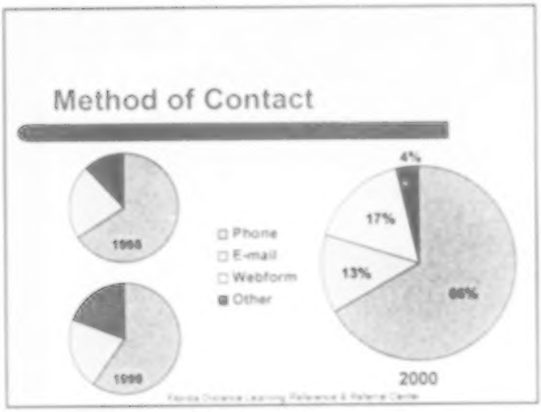
Florida Distance Learning Reference & Referral Center



Method of Contact

- Ways in which students contact the RRC:
  - E-mail
  - Web form
  - Chat
  - Toll-free phone
  - Fax, postal mail, walk-in

Florida Distance Learning Reference & Referral Center



Method of Contact

Florida Distance Learning Reference & Referral Center

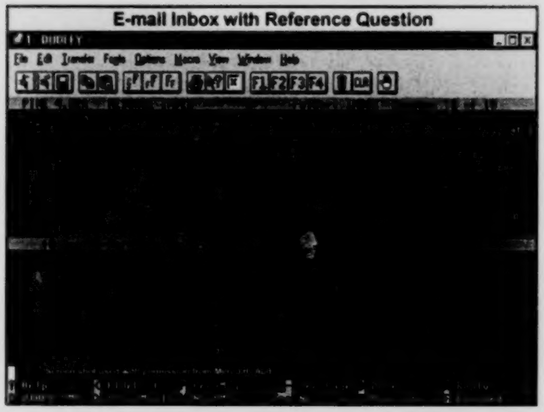
Workflow Issues – E-mail Contact

E-mail - rrc@lib.usf.edu

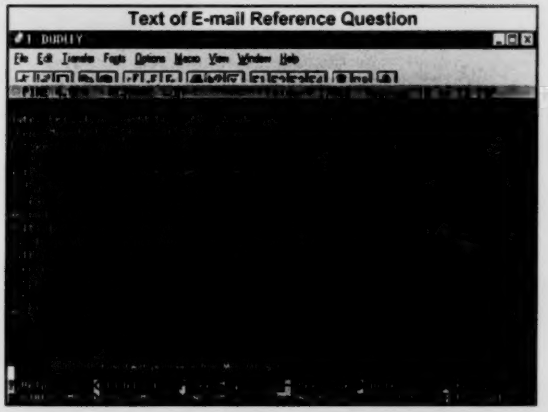
- All staff members receive e-mail via a distribution list.
- Whoever is "on" is responsible for answering question.
- Answers copied to distribution list for tracking purposes.

Florida Distance Learning Reference & Referral Center

E-mail Inbox with Reference Question


DUDLEY
File Edit Transfer Flags Options Macro View Window Help

Text of E-mail Reference Question


DUDLEY
File Edit Transfer Flags Options Macro View Window Help

Workflow Issues – Web Form Contact

Ask-A-Librarian - www.rrc.usf.edu/ask.html

- Web form output sent as email to rrc@lib.usf.edu.
- These questions are handled the same as e-mail inquiries.
- This method of contact is preferred over e-mail because it elicits more "reference interview" information.

Florida Distance Learning Reference & Referral Center

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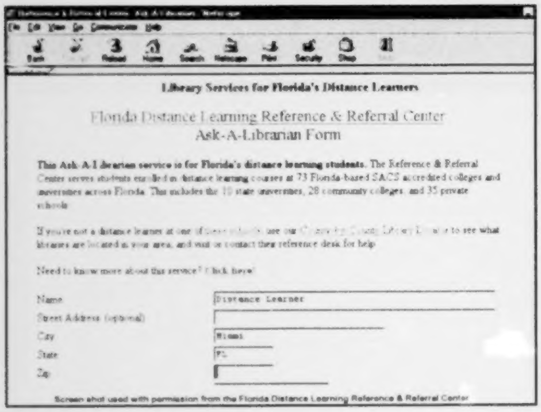


Library Services for Florida's Distance Learners

Florida Distance Learning Reference & Referral Center
Ask-A-Librarian Form

This Ask-A-Librarian service is for Florida's distance learning students. The Reference & Referral Center serves students enrolled in distance learning courses at 73 Florida-based SACS accredited colleges and universities across Florida. This includes the 10 state universities, 28 community colleges, and 35 private schools.

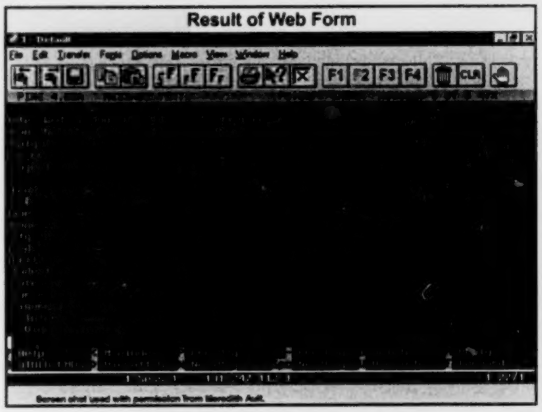
If you're not a distance learner at one of these schools, see our County by County Library Locator to see what libraries are located in your area, and visit or contact their reference desk for help.

Need to know more about this service? Click here!

Name	Distance Learner
Street Address (optional)	
City	Miami
State	FL
Zip	

Screen shot used with permission from the Florida Distance Learning Reference & Referral Center

Result of Web Form



Screen shot used with permission from Meredith Ault.

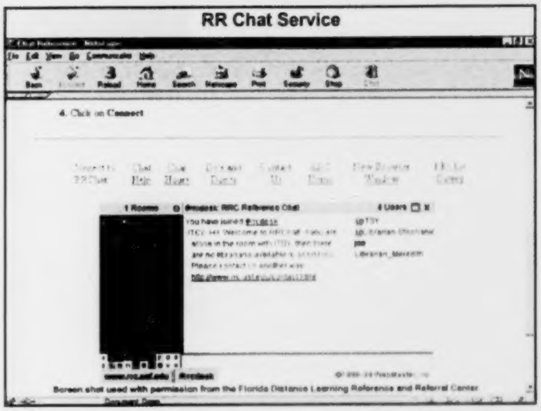
Workflow Issues - Chat

RR*Chat* - www.rrc.usf.edu/chat

- Only two librarians log in at once
  - don't want to overwhelm patrons
  - cover breaks
- Staff alternates logging into chat room.
- Bell alerts RRC staff when a visitor enters chat room.

Florida Distance Learning Reference & Referral Center

RR Chat Service



4. Click on Connect

Screen shot used with permission from the Florida Distance Learning Reference and Referral Center

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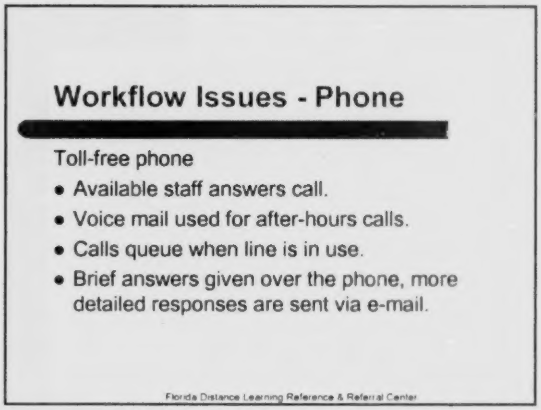
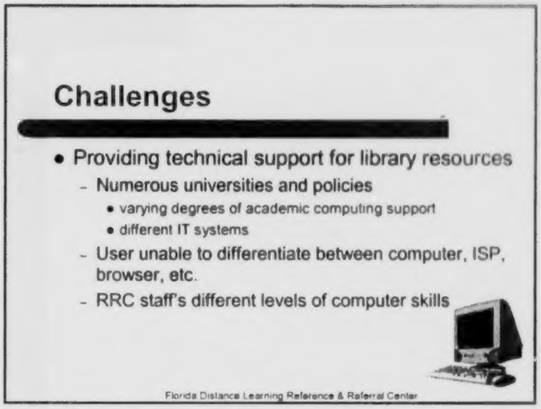


Workflow Issues - Phone

Toll-free phone

- Available staff answers call.
- Voice mail used for after-hours calls.
- Calls queue when line is in use.
- Brief answers given over the phone, more detailed responses are sent via e-mail.

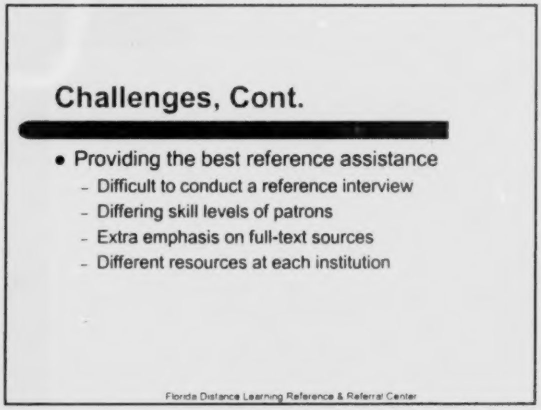
Florida Distance Learning Reference & Referral Center



Challenges

- Providing technical support for library resources
  - Numerous universities and policies
    - varying degrees of academic computing support
    - different IT systems
  - User unable to differentiate between computer, ISP, browser, etc.
  - RRC staff's different levels of computer skills

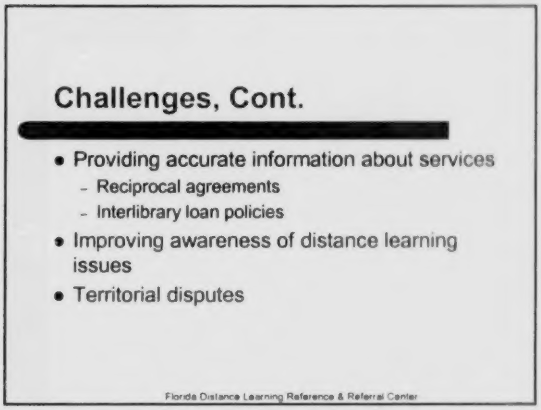
Florida Distance Learning Reference & Referral Center



Challenges, Cont.

- Providing the best reference assistance
  - Difficult to conduct a reference interview
  - Differing skill levels of patrons
  - Extra emphasis on full-text sources
  - Different resources at each institution

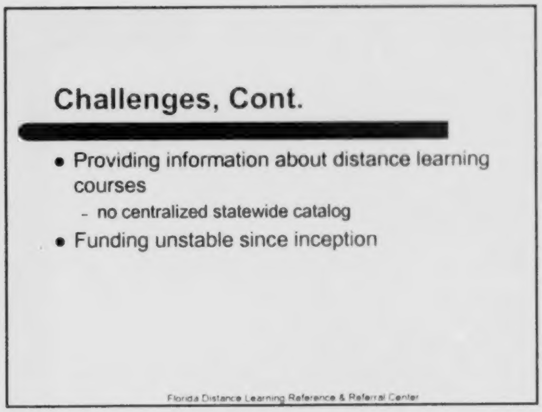
Florida Distance Learning Reference & Referral Center



Challenges, Cont.

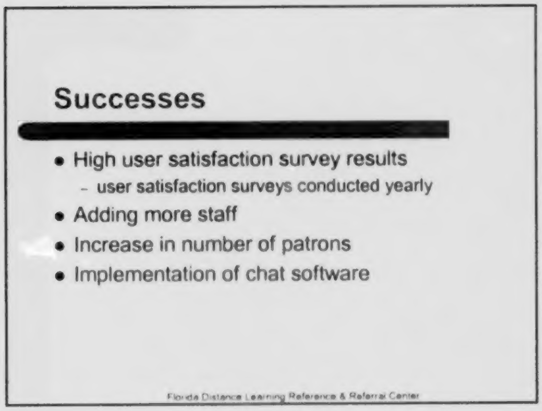
- Providing accurate information about services
  - Reciprocal agreements
  - Interlibrary loan policies
- Improving awareness of distance learning issues
- Territorial disputes

Florida Distance Learning Reference & Referral Center



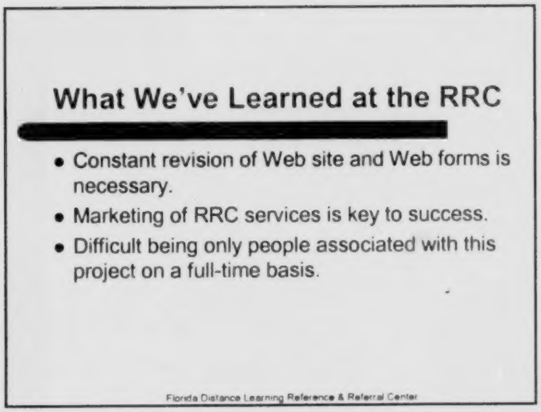
Challenges, Cont.

- Providing information about distance learning courses
  - no centralized statewide catalog
- Funding unstable since inception



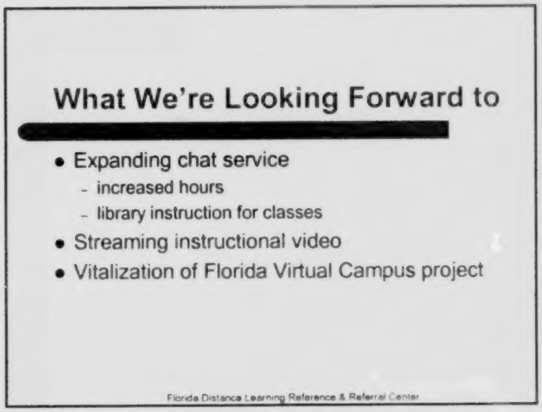
Successes

- High user satisfaction survey results
  - user satisfaction surveys conducted yearly
- Adding more staff
- Increase in number of patrons
- Implementation of chat software



What We've Learned at the RRC

- Constant revision of Web site and Web forms is necessary.
- Marketing of RRC services is key to success.
- Difficult being only people associated with this project on a full-time basis.



What We're Looking Forward to

- Expanding chat service
  - increased hours
  - library instruction for classes
- Streaming instructional video
- Vitalization of Florida Virtual Campus project

Interactive Reference Project - Assessment After Two Years

Sam Stormont
Temple University Libraries

Abstract

This paper presents a brief history of the Temple University Libraries' real-time reference service and describes the challenges encountered in launching and maintaining the Interactive Reference Project. The major issues that emerged during the initiative are discussed and include staffing, promotion, technical support and the effectiveness of this mode of service. Technical challenges are also addressed, and a distributed staffing model is described for the TalkNow service. Factors that contribute to success are outlined and include management and staff support and an atmosphere that encourages people to become involved and invested in the service.

What is Real-Time Reference?

The goal of the Temple University Libraries' real-time reference service is to allow patrons to submit reference questions electronically and receive immediate responses. This service provides a response within seconds, as contrasted with e-mail reference, which can take hours or even days.

History of TalkBack and TalkNow

In November 1998, Temple University Libraries launched a new real-time reference service called TalkBack as a pilot project. This service allows library users to connect directly with staff at the Paley Library Reference Desk through a link on the libraries' Web site. The user types a question into a Web-based form that includes name, e-mail address and comment fields and then clicks on a "submit" button to transmit the question to the library. A librarian receives the question and types in a response. The exchange is much like a chat program interaction.

We received positive feedback about TalkBack, and students began using the service without publicity or promotion. We simply put up some links on the library Web pages, crossed our fingers, and waited to see if anyone responded. The lack of publicity allowed the reference staff time to get used to TalkBack. Articles were published in the library newsletter and the computer services newsletter, but we remained otherwise low-key. As the pilot project progressed, we identified some shortcomings and set out to find ways to overcome those drawbacks and improve the service.

We researched existing software by reviewing academic and trade journals, monitoring newsgroups and electronic discussion lists, and consulting librarians and faculty. No existing software package met all our criteria. Two students in Temple's Computer and Information Sciences department developed a prototype based on our specifications. During the summer and fall of 1999, we tested the service and then launched Temple TalkNow on December 20, 1999.

How TalkNow Works

Temple TalkNow uses the Linux operating system (a version of Unix) and a scripting language called PHP. PHP is a server-side, cross-platform HTML-embedded scripting language that allows Web developers to write dynamically generated pages quickly.

Here's how a TalkNow transaction works:

1. The librarian comes to the desk and logs on to TalkNow. She's ready to receive questions at the workstation.
2. A user clicks on the TalkNow link, and is connected to the dedicated TalkNow server.
3. The TalkNow screen appears, telling the user that a librarian is logged on and explains that the user can type in his question.
4. When the user is ready, he submits the question by clicking the "send" button and the question appears on both his monitor and the librarian's monitor.
5. The ensuing conversation proceeds like a standard chat dialogue.

Proliferation of Chat and Instant Messaging Software

Chat and instant messaging software have become immensely popular. Over one billion instant messages (IM) are sent over the Internet each day, and three million users are signing up for free public instant messaging services each month (Miller, 2000), making IM one of the fastest-growing Web-based technologies. ICQ ("I Seek You") and AOL's Instant Messenger products have over 153 million users (Kane, 2000). In the past year, a number software packages have become available that allow companies to provide live customer service over the Web.

Libraries are beginning to experiment with live reference service. The University of Leicester Library has created an excellent site for their Elite Project (www.le.ac.uk/li/distance/eliteproject/project/elite.html), with links to many electronic and real-time services and a wealth of information on the subject.

Issues in Providing Real-Time Service

At Temple University, several major issues have crystallized over the past two years including: staffing, promotion of service, technical support, and service effectiveness.

Staffing

Real-time reference is labor-intensive. It represents an additional access point competing for librarians' attention. Since our reference department was already stretched thin, all staff did not welcome an additional service. Another issue is the perennial problem of uneven, unpredictable patron demand. If the reference desk is not busy, it is not problematic to answer an online reference question. However, if there are walk-in or phone patrons, the librarian must juggle requests. We considered moving the TalkNow service away from the reference desk, but decided against it, since this would require assigning a professional to it, putting even greater demands on staff time.

Librarians were initially skeptical. Several considered a real-time service just one more thing that would create stress at the desk, another stream of questions that would make it more difficult to provide quality service to walk-in and phone patrons. Some simply objected to the chat mode, finding it limiting (e.g., "If I could speak to him on the phone, it would be easier and quicker to explain."). Many people were unfamiliar with chat technology, which may have caused them to be wary of this type of service. However, everyone agreed that learning to use the software was relatively easy. The hard part was making it work for a satisfactory reference transaction. This works best when both the librarian and student are motivated and patient and there is plenty of time for both parties to focus on the transaction. Transactions are less successful when several minutes are required to find information for a user or it is necessary to ask a number of clarifying questions; in these cases, the user sometimes gets impatient or technical problems interfere with the completion of the transaction.

One possible solution to managing the extra demands on staff created by real-time reference is based on the concept of the distributed staffing model, where librarians at multiple locations share the question load. The unpredictability of demand within a defined time period is one of the most vexing challenges facing any reference department. For instance, one given hour in which two people staff the desk may include moments when one or both librarians are not actively engaged with a patron as well as moments when four people show up at the desk simultaneously.

Temple has several departmental libraries located in various buildings on the main campus as well as libraries on other campuses (Ambler, Tyler, and Harrisburg). Staff from several different libraries can log onto TalkNow simultaneously. This increases the odds that when one desk is busy, another has staff available to answer a particular question.

Another possibility for managing staff workload is referrals. For instance, a question taken by someone at the main reference desk may decide it is more appropriate for the engineering library and will refer the question to the engineering desk.

Another very important factor related to staffing is an individual's attitude toward technology. Staff who embrace technology and consider it fun and interesting will fare much better in a real-time reference environment than those who learn and use new technology reluctantly. The more people willing to adopt use of the new technology, the greater the likelihood for success with real-time reference.

Promotion of Service

A second major challenge is advertising a service. E-mail reference in academic institutions has consistently drawn a small handful of users as compared with walk-in users. Real-time, online reference at Temple University is following the same pattern of only a few questions a day, although we know that many people are searching and using our Web pages. It's unlikely that users are finding everything they need easily and quickly on the Web pages, and therefore do not need reference help. It is more likely that the service has not been sufficiently publicized. Temple's publicity efforts have included publishing articles in the library and computer services newsletters; promoting the service to supervisors of all the campus computer labs as well as all the staff in our main and branch libraries; and including multiple links to TalkNow on the libraries' Web pages. However, the use of the service is still quite modest.

With the redesign of the library home page this fall, the TalkNow link will be positioned more prominently (it is now on the home page, but users must scroll down to see it). The link will also be included on additional pages throughout the library Web site to increase TalkNow's visibility. We have also considered conducting a contest to increase awareness. In addition, the library has initiated a partnership with the Online Learning Program at Temple, which we hope will increase campus awareness of the real-time reference service.

Technical Support

Real-time reference services should consider the issue of long-term technical support. TalkBack was a commercially available program, but was no longer being updated, enhanced, or supported. We were able to use the existing program for a very modest cost (almost free), but we were on our own with regard to enhancements and technical support. Consequently, we used the program in its original state. TalkNow was also free and we could customize the software to meet our specific needs. However, the student authors moved on to other projects and are not available to provide further enhancements or support.

It can be extremely valuable for a real-time reference service to hire a full-time programmer or have access to a programmer on an as needed basis. Another solution, depending on service budget, is to purchase a commercial product that is being updated and supported. While "grow your own" software developed in-house by students or university staff can sometimes work well (e.g., Gopher and Mosaic programs), it is often difficult to maintain. On the other hand, some software companies offer products that use the companies' server rather than the libraries' server, reducing maintenance and support demands. However, these products can be relatively expensive.

In April 2000, we made the TalkNow software available for anyone to download. We hope that others can take the basic code, improve upon it, and then put it out in the public domain in a continuing cycle.

Service Effectiveness

Our real-time reference service has received hundreds of questions and many favorable and constructive comments from users. A more in-depth analysis, using the archive of questions, will give us a better understanding of the effectiveness of the service. We plan to obtain additional feedback from users through the following strategies:

- A link on the TalkNow page will allow students to submit comments.
- At the conclusion of a TalkNow transaction, the librarian will ask the user to rate his or her satisfaction level.
- Students who have used the service will be sent a short follow-up questionnaire.

Conclusions

It is vital to have the support of executive management. We found that with the University Librarian's support, the project's chances of success are improved immeasurably. In addition, those implementing and managing real-time reference should take certain measures to ensure success:

- Provide positive reinforcement to the staff members who operate the service, and deal with problems as soon as they occur.
- Give staff discretion to develop their own style and to use their own judgment in answering real-time reference questions.
- Encourage suggestions to improve the service.
- If possible, phase in the service gradually to give staff a chance to get accustomed to the software and the new way of interacting with patrons.
- Allow staff to "own" part of the project. Make sure they feel invested and try to develop an atmosphere that helps everyone to feel involved in the service.

Real-time reference services are in the early stages of development. Chat and instant messaging programs represent the beginning of collaborative services that will evolve by leaps and bounds during the next few years. TalkNow represents the latest refinement in our continuing effort to use new technologies to meet the needs of our community.

Reference List

Kane, M. (2000, May 31). Odigo sends a message to AOL [Online]. *ZDNet News*. Available: http://www.zdnet.com/zdnn/stories/news/0,4586,2579263,00.html [2000 December 21].

Miller, S. K. (2000). Collaboration at warp speed. *InfoWorld*, *22*(22), 41-42.

Remote Reference Services at the North Carolina State University Libraries

Eric Anderson, Josh Boyer & Karen Ciccone

Abstract

In order to provide equivalent services to patrons in and outside the library, North Carolina State University (NCSU) Libraries have implemented a service point within the main library for responding to requests from off-site patrons. During their shifts at the off-site services desk, staff members answer reference questions received via telephone, e-mail, and online chat.

The new service point has enabled librarians to give their full attention to telephone calls. Meanwhile, librarians and patrons at the traditional reference desk are no longer distracted by a ringing telephone.

Staffing the new desk continuously in shifts has dramatically improved our ability to answer questions quickly. Response time is considerably less than that during normal business hours (approximately two and one-half hours on average).

This paper discusses the benefits of implementing the service, staffing strategies, and some challenges encountered. The Ask a Librarian Web site is located at www.lib.ncsu.edu/libref.

Introduction

The North Carolina State University Libraries' Research and Information Services Department has implemented a service point within the main library for responding to requests from off-site patrons. During their shifts at the off-site services desk, staff members answer reference questions received via telephone, e-mail, and online chat.

The off-site services desk reflects the NCSU Libraries' commitment to providing equivalent services to all patrons, whether they come to the reference desk in person, by phone, or by e-mail from outside the library. The Association of College and Research Libraries (1998) promotes the philosophy that distance learners are "entitled to library services and resources equivalent to those provided for students and faculty in traditional campus settings." The Research and Information Services Department has embraced this ideal and extended it to all off-campus NCSU-affiliated patrons: faculty members in their offices, students doing research in their dorms, disabled patrons who have difficulty coming to the library, and others in addition to distance learners. The Research and Information Services Department considers the research needs of off-site patrons and those of patrons who come into the library to be equally important.

Off-site Services Desk

The off-site services desk is located in a small room in the reference area next to the traditional reference desk. This proximity is an important factor in keeping staff from feeling isolated, allowing consultation with staff at the traditional desk. This has also made it unnecessary to purchase additional copies of reference works. Additional copies of telephone books, procedures manuals, library schedules and telephone numbers, and other frequently consulted materials have been placed in the room, but the entire reference collection is just outside the door. Voice-mail ensures that no call will be missed if a staff member needs to step away from the desk for a minute to consult a reference source. Staff members also consult a collection of online reference tools (currently under development) (www.lib.ncsu.edu/eresources/er_ref.html), which includes links to many valuable sources of answers to ready reference questions.

The physical layout and furnishing of the room continues to improve as desk staff suggest ways to make it more functional and comfortable. We have added a non-networked computer with Internet Service Provider accounts for diagnosing remote access problems. We have also created more desk space and otherwise responded to needs as they have arisen.

Telephone Reference

One of the major impediments to providing equivalent services to off-site patrons was the conflict between answering the telephone and providing on-site patrons with undivided and uninterrupted attention. The phone was often viewed as a distraction, with desk staff feeling pressured to end conversations quickly. By removing the telephone from the reference desk, the new service point for off-site services has enabled desk staff to give their full attention to telephone calls. Voice-mail and a "zero out" option (i.e., allowing callers to press 0 to reach a human being) ensure that patrons never encounter a busy line, and a new toll-free number for distance learners eliminates a potential economic barrier to attaining reference assistance. Meanwhile, staff and patrons at the traditional reference desk are able to focus completely on in-person reference transactions.

To further improve the quality of our telephone reference transactions, we have created written procedures for answering the phone, putting someone on hold, and transferring a call. Reference desk training now incorporates a component dedicated to remote reference transactions.

E-mail Reference

The NCSU Libraries have seen a dramatic increase in the number of e-mail reference questions, accompanied by a decrease in the number of in-person reference transactions. This is a trend similar to other academic libraries nationwide (Association of Research Libraries, 1999). The off-site services desk has helped us to respond to these changes. By staffing the desk continuously in shifts, we are able to reply quickly to the increasing number of e-mail reference questions. Average response time (including evenings, when the desk is not staffed) has dropped from seven and one-half hours in October 1999 to four hours in May 2000. Response time during regular business hours is considerably less than that (approximately two and one-half hours on average).

Before the creation of the off-site services desk, e-mail reference questions were received in a dedicated library e-mail account using QuickMail and were answered by one staff member. The staff were forced to overcome several technical and logistical challenges. A shared system for answering these requests was developed, and the e-mail system was converted from QuickMail to Netscape Messenger at the same time. The switch to Messenger resulted in the need to create a shared folder that could be accessed by all desk staff during their shifts at the off-site services desk. There was also a need to ensure that one person (and only one person) would take responsibility for answering each question. We solved this problem by having staff only open new e-mail reference questions during their assigned shifts at the off-site services desk. If a staff member is unable to answer a question during that time, he or she may either pass the question on to the next person on the shift or continue answering the question by placing it in a subfolder marked "Pending." Once a question has been answered, it is moved to a "Done" subfolder and later deleted.

We collect statistics on the number of questions received, the time taken for staff to respond, and the affiliation of the people asking the questions. We also take note of the geographic origin and general subject of the question.

One of the biggest challenges we currently face is developing a system of quality control and staff training for answering e-mail reference questions. Without the immediate feedback available with in-person, telephone, and online chat transactions, it is sometimes difficult to know how far to go in answering a patron's e-mail request, or even whether a response has addressed the question. We encourage the patron to call the desk or reply if his or her question has not been completely answered. We also try to "put a smile" on our e-mail responses, providing the same cheerful and attentive customer service one would expect at the reference desk. In an effort to improve quality and consistency in our answers, we read other people's responses before they are deleted. We have also created a "cut & paste" folder containing exemplary answers to frequently asked questions.

Chat Reference

NCSU Libraries decided to implement a chat service in order to provide patrons with immediate response and to allow patrons with one phone line to continue online searching while asking a reference question.

Initially, we investigated two software solutions for our chat service: America Online's Instant Messenger and a free campus IRC chat server. Both options had limitations. Instant Messenger required patrons to download and configure the software; the IRC server required us to set up an appointment system to indicate when a patron wants to chat and required patrons to log in with their NC State IDs.

In order to minimize the effort on the part of the patron, we decided to pursue chat software that was much simpler for patrons to use. For instance, the chat service offered by the Lippincott Library at the University of Pennsylvania (www.library.upenn.edu/resources/reference/business/ref-business.html?business) uses LivePerson chat software. This system allows patrons to reach the chat service by simply clicking on a "Live Reference" icon. It was clear that we would have to spend money on software. LivePerson and similar products cost hundreds of dollars a month, but our free options came with too many limitations.

We selected LSSI's Virtual Reference Desk, a product that offers a chat interface as well as a collaborative Web-browsing feature (i.e., the patron can view what is on the librarian's browser and vice versa). Reference librarians can point a patron's browser to the library's catalog and show her how to use it, and the patron can show the librarian where she was looking for information when she asked for help. The patron and librarian can talk to each other on the phone or by chatting. This requires nothing from the patron but a browser – no downloads, no plugins, no configuring, no IDs, no appointments. We plan to implement the service in January 2001.

We are excited about collaborative browsing for several reasons:

1. During a chat session, librarians can show patrons how to find something on the Web, instead of just telling them. The Web is a visual and interactive medium; writing about it in a chat screen is like describing how to a paint a picture.
2. Librarians will use the collaborative browsing feature with patrons who contact us via chat as well as those who initially contact the library through phone and e-mail. In other words, whenever we want to demonstrate how to use something on the Web to a patron who is not at the reference desk, we can just ask them to go to our Ask A Librarian Web site and click the Live Help button.
3. NC State has 1,400 distance education students. One way to show them how to use the library's Web site (including the catalog, databases and e-journals) is through Web co-navigation. This can be done either one-on-one or with a class at a remote site.
4. Collaborative software represents one of the most interesting frontiers on the Web. Commercial sites like Lands' End allow customers to shop together. Business people use software such as NetMeeting and WebEx to hold meetings online. As a library, we want to experiment with this technology and see where it leads.

Web Site

The Ask a Librarian Web site includes links to information and assistance (www.lib.ncsu.edu/libref/), and includes our policy for responding to questions from non-NCSU patrons: "This service is for students, faculty, staff, and other affiliates of NC State University. If you are not affiliated with NC State, we regret we can only answer questions about services and collections unique to the university. Other inquiries may be referred to more appropriate libraries or sources of information."

This notice is a necessary response to the high volume of questions we receive. However, we attempt to assist non-NCSU patrons whenever possible, including referring them to local resources they might be able to utilize.

Also included on the Web site are examples of the types of questions that can be asked and a link to our FAQ. The site also includes links to options for telephone, e-mail, and online chat reference.

Future Directions

As the off-site services desk matures, we some requests for improvement. We would like to upgrade our method of gathering statistics in order to assign responsibility for a question to a specific librarian, automatically track and record response time and other statistics, and save selected, edited responses in a database. We are exploring various applications, including Remedy, as possible answers to this need.

Additionally, we wish to increase the amount of peer review in e-mail, phone and chat reference. At a traditional reference desk, librarians listen to each other answer questions and learn from each other's best practices. Phone, e-mail and chat usually limit the librarian and patron to one-on-one communication, making the sharing of reference interviews more difficult. We plan to explore ways to help reference librarians share their online successes.

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American Library Association & Association of College and Research Libraries, Distance Learning Section. (1998). ACRL Guidelines for Distance Learning Library Services [Online]. Available: http://caspian.switchinc.org/~distlearn/guidelines [2000, June 16].

Association of Research Libraries. (1999). Trends in ARL Libraries: Introduction to ARL Statistics, 1998-99. [Online]. Available: http://www.arl.org/stats/arlstat/99intro.html [2000, June 16].

The Virtual Reference Desk Network

Blythe Bennett
Information Institute of Syracuse

Presentation

Introduction

The Virtual Reference Desk Network accepts out-of-scope and overflow questions and routes them to more appropriate services or volunteer librarians for response. The collaborative network began in January 2000 and continues to add new volunteers and services to assist patrons, provide professional development for volunteers, and support AskA services for a win-win-win situation.

Virtual Reference Desk Network

Seattle
October 16, 2000

VRD Project

- Clearinghouse
  - Digital Reference Conference
  - Publications
  - AskA Consortium
  - Instruction and Support
  - Research and Development

VRD Project

- Services
  - Collaborative AskA Network
  - Learning Center
  - AskA+ Locator
  - Incubator Software

Project Goals

- Connect K-12 education community and beyond to experts and expertise.
- Provide resources and support to AskA services in *all* contexts.
- Set standards for digital reference.

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VRD Sponsors

- U.S. Department of Education
- National Library of Education
- With support from the White House Office of Science & Technology Policy

Service Types

- General information referral
  - Internet Public Library
  - Library-based services (e.g., Ask A Librarian)
- Specific subject area
  - AskERIC
  - MAD Scientist Network
  - National Museum of American Art Reference Desk

How Do Organizations Become Involved?

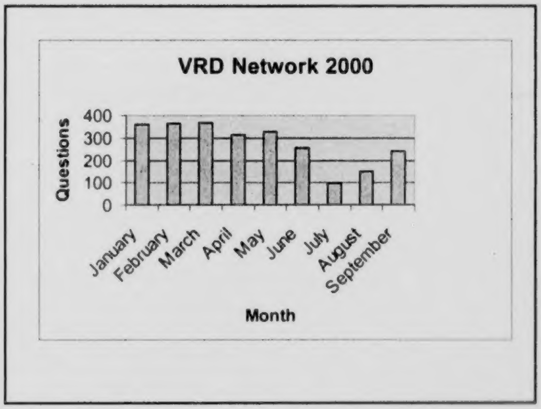
- Volunteer with an AskA service managed by the organization.
- Volunteer with a preexisting AskA service:
  - MAD Scientist, Dr. Math
- Volunteer with VRD as subject expert.

How Does VRD Help Start A Service?

- Provide Web based AskA software (Incubator).
- Provide server space on the VRD site.
- Provide training for administrators and trainers.
- *AskA Starter Kit.*

Collaborative AskA Service

- Launched January 2000
  - 18 Services
  - 56 Volunteer Librarians (on call)
  - 1.25 Staff
  - approx. 300 questions/month
  - over 30 countries
- Seeking new services/individuals to join network
  - Library-related
  - Subject-specific
- Online training



VRD Network Members

- Science/Math related AskA services:
  - The MAD Scientist Network
  - Ask Dr. Math
  - Ask Dr. Universe
  - Ask Shamu
  - Dino Russ's Lair
  - Science Line (in UK)
  - Eisenhower National Clearinghouse for Mathematics and Science Education
  - Teacher 2 Teacher (from Math Forum)
  - Ask Jake the Sea Dog
  - Ask a Space Scientist (NASA)
  - Environmental Protection Agency

VRD Network Members

- Non-Science related AskA services:
  - AskERIC
  - Kentucky Center for School Safety
  - Digital Library and Archives at Virginia Tech.
  - Internet Public Library
  - Morris County Public Library (NJ)
  - Ask Joan of Art, National Museum of American Art (Smithsonian)
  - Library of Congress's American Memory
- Network Information Specialists:
  - 50+ trained librarians (school, public, academic)
  - MLS students (some interns)

VRD Volunteers

- Elementary school librarians - 13
- Middle school librarians - 9
- High school librarians - 13
- Multi-age school librarians - 8
- Academic librarians - 7
- Public librarians - 2
- MLS students - 4
- Part time paid staff - 1

Network Triage Process

- Out-of-scope and overflow questions from AskA services sent to VRD
- VRD re-routes to more appropriate service, or question is answered by VRD volunteer
- If answered by a volunteer, copy of response is sent to archive

Triage Examples

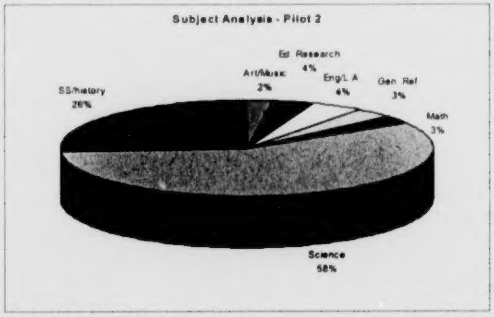
- AskERIC: origin of French people in Louisiana
  - VRD volunteer
- MAD Scientist Network: teaching atomic theory
  - ENC
- IPL: curriculum design
  - AskERIC

Sample K-12 Questions

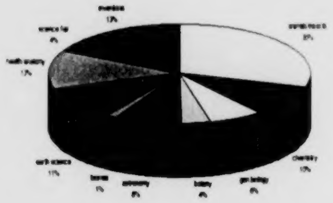
- **What is the exact length of the planet Mars' day to 4 decimal places?**
- **I am doing a paper on what I want to be when I grow up and I've chosen teaching but I don't know how to find the information I need please help!!!**
- **Where can i find pictures of the poverty and destruction during the Great Depression?**
- **i am looking for information on domestic violence to write my term paper.could you please e mail me any information and web pages that you have.**

Post Secondary Questions

- A student wanted to know if it is true daddy long leg spiders can kill black widow spiders. I would like to know more about this subject so I can provide a correct response.
- Why is the "speed of light" (c) so critical in converting energy into mass or mass into energy? Both a quantitative (mathematical) and qualitative explanation would be helpful.



Science Subtopics



Quirky Questions

- I am investigating the surface area of a camel's hoof and its relationship with the weight being loaded.
- what is the average air velocity of a European swallow?
- what is the perfect bra?
- We were wondering how much the average cow craps in one day.

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Out of Scope

- How long does it take blood to dry? Given these facts: Temperature: 90-95 degrees, blood is on concrete. time of day: 6:00 p.m. - 7:00 p.m. in July, which is usually a hot and dry month. Please don't think I am weird. My husband is a former homicide detective and is in the process of being sued. This involves a homicide he investigated.

VRD Network Policies

- Advice
- Controversial topics
- Copyright
- Inappropriate comments/questions
- Interlibrary Loan (ILL)
- Liability
- Privacy
- Selection Policy

Thank You Notes

- I just wanted to thank you for taking the time to respond to my questions. Your response was full of wonderful information; I am pleased to know. Keep up the good work.
- Thanks for your advice (and your brain) It will help me allot with my assignment, and I think (and hope) it will impress my Science teacher, but it is very hard to impress "smelly Reynolds"

Benefits

- for AskA services
  - **Forward out of scope questions to VRD to be answered by appropriate services or experts.**
  - **Forward some overflow questions to VRD to be handled by VRD information specialists.**
  - **Assist with shaping standards in online Q and A.**
  - **VRD Consortium membership**

Benefits

- for patrons
  - **Questions are forwarded to the most appropriate experts.**
  - **Reliable service: All questions receive responses from subject specialists or general information specialists.**
  - **Seamless transfer of original question, resulting in less waiting time**

Some issues

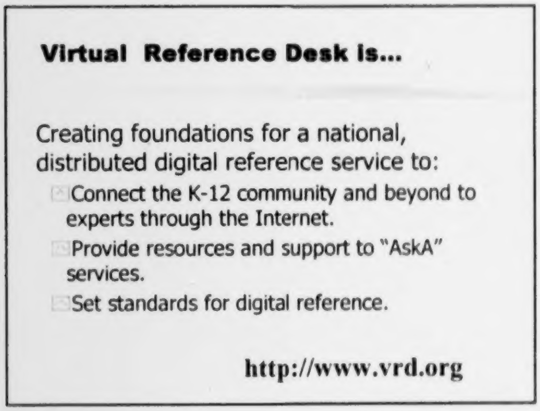
- liability
- response rate
- advice
- scope - topics and age range
- archiving responses

Future of VRD

- Launch of Learning Center
- Launch of incubator service
- Public access to collaborative AskA service
- Cross-service knowledge base
- Software development for internal processes
- Recruit new services and experts
  - Matchmaking database
- Continue dialogue in digital reference field

VRD Learning Center

- Public section for patrons
  - AskA Services
  - Previously-asked questions
  - FAQs
  - Top sites
- Parents & Educators
- Research Skills
- Search

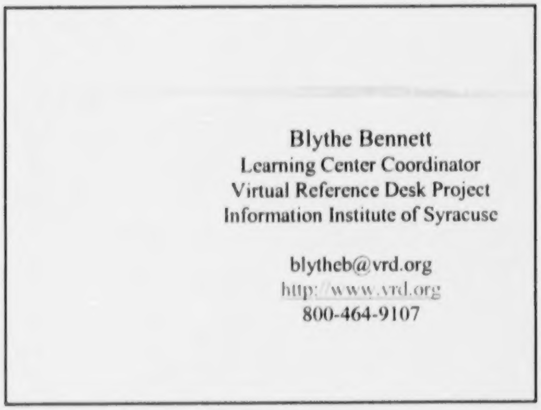


Virtual Reference Desk is...

Creating foundations for a national, distributed digital reference service to:

- Connect the K-12 community and beyond to experts through the Internet.
- Provide resources and support to "AskA" services.
- Set standards for digital reference.

http://www.vrd.org



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Transitioning from Call Center to Digital Reference Service

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Presentation

Introduction

Columbia University's Center for International Earth Science Information Network (CIESIN) is a research and data center concerned with human interactions with the environment. As such, CIESIN has two projects that provide product support and reference assistance through its user services office. User services at CIESIN began as a product (data and services) support center, much like a commercial call center, as most user requests arrived by phone and were technical in nature. With the advent of the Web and the evolving nature of CIESIN's projects, CIESIN now provides digital reference services in addition to fulfilling responsibilities to support our products. This paper describes the changing responsibilities and the actions taken to meet user needs.

The two projects at CIESIN that have a user services function are the US Global Change Research Information Office (GCRIO) and the Socioeconomic Data and Applications Center (SEDAC). CIESIN's user services office operates the Ask Dr. Global Change reference service within GCRIO and offers product support and limited reference service in SEDAC.

After a self-analysis of our services, several steps were taken to incorporate digital reference principles into existing operations. We have redesigned many of our Web pages to guide and invite user inquiries, rather than just let questions "happen." By guiding the questions (clearly stating our area of expertise, types of questions we will entertain, set user expectations, etc.), we hoped to reduce frequently-asked, overly general, out-of-scope and prank questions. We also wanted to improve question quality, eliminate the need for user services staff to act as an intermediary between the user and our science staff, and to move away from e-mail as a prime interface.

An important part of our new approach was to integrate help desk software into our services. We purchased RightNow Web from RightNow Technologies. By developing a database of questions and answers, we used the help desk software to encourage users to browse frequently-asked questions (FAQs) and conduct keyword searches before posing their questions to user services staff. The help desk gives us much better ability to track questions and produces an excellent array of reports.

The Ask Dr. Global Change service went online on 1 April 2000, using the help desk software and our newly designed interface. Based on the first six months of operation, we have seen an approximate 50% reduction in the number of questions asked. We believe the reason for this is that many users are finding answers to their questions by browsing or searching the archive of questions and answers. There is roughly a 6:1 ratio between FAQs browsed and questions asked and keyword searches and questions asked. People are finding the answers to their questions almost immediately and without having to pose those questions to user services.

A Management Model for Digital Reference Services In Large Institutions

Barbara MacAdam
Suzanne Gray

Abstract

Large, decentralized information organizations face a unique set of challenges in effective management of virtual reference service. Proposed here is a model that is particularly relevant to academic libraries in large research institutions, but extendable to other types of organizations with similar characteristics. The five critical issues examined include: integrating virtual reference service with existing services; allocating fixed resources; acting as an effective advocate to secure organizational support; developing a distributed service model integrating specialized, subject-domain expertise; and targeting and serving disparate segments of the user community. These concepts and strategies will be most useful to managers in information organizations who have responsibility for reference service development and need solutions designed specifically to achieve service goals for virtual reference by working within and across the larger organization.

Introduction

Information professionals who made the assumption that virtual reference services development would share most of the challenges of traditional reference models, and roughly the same solution strategies, have quickly realized the obvious and significant differences. Moreover, large, decentralized information organizations face a unique set of challenges in effective management of virtual reference services. A sound management model applied to academic libraries in large, research institutions may have useful application to other types of organizations with similar characteristics. The factors unique to the larger organization can be neutral elements, barriers, or positive agents in any effort to develop and manage digital information services, depending on the ability to manipulate them successfully in a new initiative.

Characteristics

1. **A broad mission** - A typical academic library mission statement might be to support the research and educational endeavor of the campus, to serve the larger community for the public good, and to acquire and preserve the collection for the knowledge base of the future. While almost any activity can be justified under this mission, it is harder for any particular service initiative to demonstrate mission critical importance.

2. **Various and sometimes conflicting goals** – Conflicting goals might include: to provide timely, location-independent information assistance at the time of need; to foster information literate undergraduates; to serve as research partners with the teaching faculty; to maintain welcoming and widely accessible physical facilities; to sustain the culture of the book; and to foster the adoption of new information technology. Tensions

occur when large organizations try to turn fundamental values into operational strategies. Digital reference service must advance some clear goal to be perceived as though it is worth the resources and effort allotted; these resources and services will have been inevitably diverted from other important initiatives.

3. **Decentralization** - The work of the organization is spread over multiple units, separated by function (e.g., technical services, public services, systems, financial and personnel operations) and often isolated geographically and administratively. Large public service operations may have multiple physical service points, multiple reference departments, highly differentiated resources, variations in policy and process, and even unit-specific mission statements and goals. Virtual reference service, by its very nature, is at odds with this organizational segmentation, yet its success will depend on the manager's ability to work within existing realities in a distributed service model.

4. **Centralization** - The largest and most distributed organizations have centralized some key operations including systems support, software approval, purchasing, or operating budget. This can potentially hinder the manager's autonomy in making service decisions, establishing priorities, and controlling resources.

5. **Widely dispersed and over-committed resources** - Large organizations have large budgets and a large staff, but these are often deployed broadly and thinly across the distributed service operation. It is critical to understand the dimensions of decentralization versus centralization and build cooperation in order to develop effectively the critical mass of resources necessary to sustain a digital reference service.

6. **A non-homogeneous user community** - Faculty, graduate students, undergraduate students, alumni, the state or regional community, a global research community, corporate partners, and consortial agreements may all place varying demands on a virtual reference service. Although their needs vary, along with the information organization's perceived obligation to meet those needs, virtual reference users will inevitably represent a broader spectrum of the larger community than traditionally served. One of the most critical challenges is designing a central service gateway, balanced with a policy and operational structure that preserves the desired service focus for segments of the user community.

7. **An established set of services** - Services are highly entrenched with a history of budget support, service structures, staffing, and demonstrated importance to the user community. It is unrealistic to expect existing services (and their advocates) to just move over or relinquish energy and resources to digital reference development.

8. **Highly-specialized subject expertise** - Particularly in research libraries, the service structure depends heavily upon the research consultation role of subject specialists spread across the organization. This includes specialists of discipline-related knowledge and advanced technical expertise. Unless goals for the service are merely to provide basic information assistance, a successful model for digital reference must include ways to preserve and foster the links between users and the specialized knowledge providers.

9. **A complex institutional and organizational culture** - Large organizations present an often mystifying array of traditions, unwritten rules, territorial issues, protocols, style, and implicit values that hinder a clear understanding of the most effective methods for achieving goals. Virtual reference service grows from an environment that is dynamic, entrepreneurial, democratic, and inherently impatient. Sustaining the development and growth of a service, however, requires stability, support, and resources that ultimately only a broad-based, firmly anchored position in the organization can ensure.

10. **Historically entrenched user expectations** - Virtual reference may be perceived by some as a non-essential program draining resources, time, and effort away from the work of more traditional reference service. Faculty may deplore efforts that permit students to stay out of the library physically, and administrators may worry that staff, already hard-pressed to meet needs of primary users, are now responding to demands from users around the world.

11. **Complacency, conservatism, and inertia** - Large organizations are generally secure in their traditional success and complacent about their importance to the user community. The sheer volume of services and activity on a day-to-day basis can overwhelm efforts to identify emerging user needs and to respond in a timely way.

12. **Process** - Large organizations have a process for everything, ensuring that there is a way to get everything done, and guaranteeing that major service innovations run the risk of being over scrutinized.

13. **Pride, creativity, know-how, vision, energy, dynamism, resources** - All of the above elements reside somewhere in a large organization, especially today's research library. It is critical to marshal these qualities with the same urgency with which one would identify and deploy more tangible resources.

Turning Critical Issues into Achievable Goals

Defining an Appropriate Role and Integrating Virtual Reference Service with Existing Services

1. **Identifying service gaps** - Precisely what user needs are currently unmet? If there is a lack of reference service across long hours in small, divisional library units, or support is needed for users working primarily with digital resources, it needs to be made explicit why the best solution is not merely expanding existing information services.

2. **Confronting changing user patterns** - Has reference desk traffic gone down? More than likely, it has, since students now have 24 hour access to the Web through the campus computer labs or residence halls, and many faculty have developed a full curriculum in the Web environment, sustaining relationships with and among their students in that environment.

3. **Establishing a shared purpose and clear priorities** - The goal is not to create a digital reference desk. Presumably, the goal is to provide outstanding information services for the user community, and digital reference service is a strategy that is responsive to unmet user needs. This is the foundation that will ensure strong connections to present services.

4. **Laying an existing service element to rest** - What is the organization willing to give up? Put another way, somewhere in the array of information services lurk components that users neither need nor desire; they continue because staff is unwilling to relinquish them.

5. **Combining seasoned experience with creative innovation** - Developing projects in the digital environment takes knowledge of technology, creativity, and a zest for experimentation. Sustaining a working service requires experience, stability, dedication, and sound management. Changes in the information environment and professional education have been so profound and happened so quickly that the potential exists in most larger organizations to involve veteran and newer professionals whose synergy will ensure successful digital service development.

6. **Applying or adapting existing policies** – Existing policy typically includes safeguards for privacy of patron transactions, levels of privilege for different segments of the user community, and guidelines for referrals. Policy is designed to make the majority of transactions flow smoothly, consistently, and predictably from the user's point of view and to ensure that users are enfranchised appropriately and treated ethically and that organizational resources are expended efficiently. The degree to which virtual reference services integrate successfully with existing services is determined somewhat by the degree to which users neither lose nor gain status in the digital environment and to which existing policies remain in new services. Inevitably, there will be areas, internal and external, where existing policy will be insufficient. New policies should be consistent in values and outcomes of existing policy.

Allocating Fixed Resources Effectively

1. **Administrative authority and budget flexibility** - Virtual reference services must be sustainable, and in most organizations that means redirecting resources from an existing budget. During an entrepreneurial or pilot phase, one-time money for capital equipment, temporary staffing (e.g., interns, residents, or use of lapsed salary money), or seed/grant money from inside or outside the institution are all reasonable ways to get an initiative off the ground. A viable, long-term service relies on diverting base budget resources; this means planning, which includes working within established processes for equipment requests, reassigning existing staff, or shifting money among personnel lines. The digital reference service manager needs authority to allocate resources or the support of an administrator who does, along with the experience and confidence to make aggressive budget decisions.

2. **Staffing** - In the larger information organization, it is not realistic to build a service solely on the assumption of hiring additional staff, exclusively devoted to providing digital reference. The best staff model integrates existing staff to the appropriate degree, with enough net staffing increase to make the service viable. In the search for additional resources, late-night reference staffing might be structured to handle virtual reference queries in slow periods between patrons; staff members who traditionally have not worked evenings or weekends might be willing to provide service from home over extended hours. Digital information services in the large, decentralized organization must invariably migrate toward a distributed staffing model.

3. **Collaboration** - Fostering cooperation among individuals and units within and outside the library serves two purposes. It can produce a critical mass of staff, expertise, and other resources lacking in any individual unit. It can introduce the combined elements of flexibility and stability for service development.

Being an Effective Advocate and Ensuring Administrative, Staff, and Technical Support

1. **Gaining staff buy-in** - The quality and longevity of a digital reference service depends on the staff who provide it. It is critical that staff share a vision for information service and perception of unmet user needs. They should be involved in every step of service planning, implementation, and operation. Managers should demonstrate that they are conscious of the very real additional demands of digital reference. One should be clear as to where resources are coming from, and convey that thought is being given to long-term needs: from resources, to protecting existing service, to staff training. It should be made clear that staff will not give up their direct role with users; digital reference service can actually foster contact with their user community. The enthusiastic manager also needs to be realistic as to how quickly service development can occur and to make sure administrative zeal doesn't outpace the time and energy of committed but overworked staff.

2. **Resourcefulness, independence and risk-taking** - Ideally, every information service manager would find the information technology infrastructure, administrative support, resources, and expertise readily available to develop and sustain a digital reference service. Because larger organizations are usually running at full speed with staff and other resources fully committed, the wise manager finds ways to implement digital reference service using a low-key approach. The next critical phase of operations is to elicit higher administrative approval based on a demonstrated proof-of-concept. The manager who avoids requesting additional resources for every new service initiative will also avoid the implicit request for prior approval and the accompanying scrutiny for an endeavor in its early days.

3. **Determining useful allies including partners outside the organization** – It is essential to build a cohort of colleagues who share a vision, understanding, and enthusiasm for digital reference. Staff at any level of the organization can be helpful in many ways. Overlapping goals create strong partnerships. There may be programs underway across campus, or within the library, where digital reference service fills an

identified unmet need. Community service programs, relations with alumni, distance education, public relations, admissions recruiting, technology support/help-desk initiatives or other information services, are all examples of opportunities for cooperation which may produce anything from resources to critical affirmation of shared institutional values.

4. **Clear goals and persuasive communication** - In spite of the persistent belief that a good idea will sell itself, there is no substitute for a clear, concise statement of the goals, audience, and projected benefits to the user community for a virtual reference service. Because it is new, requires considerable development of the service underpinnings (software/network support, staffing, policy), and suffers from the incomprehensible but pervasive belief that digital content fosters completely independent users, digital reference service requires a justification where traditional services go unchallenged, despite declining statistics.

5. **Demonstrable success** – Evidence of success can include steady (or exponential) growth in use, proof that the service is reaching a primary user community, and degree of user satisfaction. These will help illustrate that the service is worth the allocation of resources, effort, and attention required. Any successful new endeavor generates a buzz of good will; administrators will value and affirm a service with demonstrable significant outcome for the campus, colleagues will want to participate, and the user base will grow by word of mouth.

6. **Evaluation** - The first obligation in managing a digital reference service is to provide outstanding service to users. Data, including patterns of use by targeted segments of the primary user community, have value in providing management information for ongoing service development and improvement. The second obligation is to provide tangible evidence that the virtual reference service is meeting a critical need, thus justifying the continued allocation of resources. The potential for research is enormous in this area, with a wealth of data waiting to be tapped. However, the manager who honors the first two obligations will ensure the success and viability of a digital reference service and be in a position to engage in the latter activity.

Establishing a User-Centered Service Model that Balances Centralization and Decentralization

1. **One-stop shopping** - Users need a central gateway to digital reference service. One option is to offer a button labeled "Ask Us" or "Have a Question?" on the organization's Web site. This could help consolidate existing e-mail boxes and replace a variety of Web contact points. In a highly distributed organization, the central representation of digital reference services can be a significant opportunity to create a visible, easy to use, and consistent information service point for users.

2. **Integrating subject-domain expertise** - A central digital reference service does not, and should not, supplant the relationship between library subject specialists and the faculty and students they serve. The virtual reference desk can operate as a clearinghouse

and referral point for users who do not know whom to contact, and actually create new links between librarians and users. Faculty who might normally go directly to a particular librarian for discipline-specific consultation may prefer to use a central service for more general questions or when the staff member is not available. There needs to be agreement across the organization that a significant amount of reference activity will continue to transpire directly between librarians and users, but that subject specialists will anticipate and be prepared to respond to inquiries through the central service. The software/network environment should support distributed operations.

3. **Referral structure** - Referrals present a different set of problems in digital reference. Because many virtual reference services make a commitment to answering questions within a set time frame, monitoring the response time is critical. In a distributed environment, those specialists within the organization who are not participating directly in the centralized reference service may have different goals and standards for their service. Once the question is forwarded to another service point, the centralized service loses control over the quality of the answer and the response time.

This problem can be dealt with on two levels. The first is to gain an understanding of the service policies for all of the specialized virtual reference service points in the organization. Once the policies are understood, there may be room for negotiating common standards of service. However, if the specialized library is unwilling to handle requests from those outside their primary clientele, the centralized service may need to avoid referring these requests to that service point. A second strategy for handling referrals is to clearly notify the user that the query has been turned over to the specialized library. Providing a Web address for the specialized service point allows the user to follow up on the inquiry if a timely response is not forthcoming.

4. **Setting and achieving consistent response goals** - Users expect a consistent, predictable turn-around time for the questions they submit. Their expectations are often colored by the possibility of immediate access of content allowed in the Web environment. Typical response goals might include immediate confirmation of inquiry (system generated), a response or initial brief response (for more complex questions), or a message that the question is being referred, all within 24 hours, with a target of final response within one week for all questions. The best practice is to pick the shortest but most realistic response time and clearly communicate this to the user. Otherwise, users may be discouraged by a long wait or disappointed when the service fails to respond within the stated timeframe. Citing alternatives on the Web site (e.g., calling the reference desk for urgent, quick answers) will help meet user expectations.

5. **Staff training and development** - Beyond reference expertise, staff participating in virtual reference service need to have a clear understanding of the software/information technology being used to support operations, and the specific goals, policies and guidelines for service. Within this framework, they will make judgments in constructing an appropriate response. As more staff and units across the larger organization participate in the service, it is important to build a shared understanding of service goals. Staff may find they prepare long responses in the virtual environment. Benchmarks are useful to

define how long an average response should take before a referral or other action occurs, and models of well-crafted responses can help even experienced reference librarians develop communication skills in an electronic mode.

6. **Quality control** - The most fundamental way to ensure that digital reference service is consistently excellent is to define realistic service goals, accompanied by workable policies and procedures, with participating staff fully cognizant and invested in them. A digital reference service in a large research library must be predicated on the assumption that reference staff are expected to work with autonomy and to tailor responses to the specific situation. A well-designed Web form can elicit enough information from users to help offset the lack of a true reference interview. Reference styles vary among individuals. Staff in an undergraduate library, for example, might reasonably be expected to construct answers that are more instructional in nature when responding to students, while medical library specialists emphasize speedy, complete information to their faculty. Monitoring activity periodically and offering models for good responses, along with a set of standard answers for common requests are also effective strategies.

Targeting Services to the Key Segments of the User Community

1. **Needs analysis** - What unmet information service needs do the various segments of the user community have? The first step in targeting services is to clearly define the primary clientele and the institutional obligations to a wider community. Undergraduates may need real-time, immediate assistance when working from a residence hall or lab in the electronic environment. Faculty on sabbatical or doctoral students at a remote research site, for example, have other needs.

2. **Tiered services** - Because a wide range of users are attracted to a digital reference service, traffic from non-primary clientele needs to be controlled. Often the Web site of a large research library attracts non-affiliated visitors from around the world whose questions may not be directly related to the institution's collection or mission. Closing the service off to those from the outside is one approach; however, this is often contrary to institutional policy regarding telephone and face-to-face reference service, which usually does not require proof of affiliation from users. Barriers such as time, distance, or phone charges minimize the number of non-affiliated users of traditional reference services, but virtual reference services break down these barriers by providing easy, often low cost access to the service.

At most institutions, resources allocated to virtual reference services will not allow staff to fully meet the needs of non-primary clientele. Tiered service can create barriers for non-primary users while providing easy access to primary clientele. Services can be tiered based on response time, the amount of information requested of the user, and the quality of the answer provided. For affiliated users, the goal is to continue to decrease the response time in order to make the service as convenient as possible. For non-primary clientele, a more significant wait, perhaps of a week or more, may encourage them to satisfy their information need through another service. The use of separate forms for different user groups can also create barriers to non-primary clientele. Requesting additional information from these users helps to provide a clearer context for answering, while also requiring additional effort on the user's part to generate a query. Additionally, primary clientele are provided with an in depth response that is frequently instructional in nature, while non-primary clientele may be provided with a few Web sites or a referral to a specific search engine. In order for these barriers to be effective, this policy must be clearly communicated to users on the virtual reference Web site. Additionally, staff must be trained on the service goals for each category of user to maximize efficiency.

Tiered service allows for better allocation of staff time to handle incoming queries. Different types of staff can be utilized to handle the different categories of requests generated by a tiered service.

Current Challenges

The Perfect Software

A still elusive goal for large-scale information services is the complete and seamless integration of digital reference operations. The ideal management software would support Web-based asynchronous and real-time interaction and telephone and site-based, face-to-face reference; facilitate the exchange of digital content; provide flexibility to partition or centralize the environment as needed in a distributed service organization; and provide the tracking, archiving, search capability, and use-report capabilities critical for the effective management of ongoing operations.

Intellectual Freedom, Privacy, and Access

The digital reference environment turns each of these issues into a double-edged sword. Users may communicate anonymously with greater ease and may engage in more egregiously offensive or inappropriate behavior. At the same time it may be more difficult to protect an individual's privacy when detailed information may be captured in the initial Web form, and queries are referred or archived. Network authentication, or licensing agreements, may present unexpected barriers to service access. On the other hand, the accessibility and visibility of the organization's Web site will expand the user community, requiring hard decisions about balancing the public good with the need to serve primary clientele.

Evaluation

Virtual reference service will invariably grow even in the absence of aggressive promotion, but the real challenge is to demonstrate effective and high-demand service for the primary user community. Collecting detailed use and user statistics depends on adequate data capture and reporting capability within the system, but may present another set of confidentiality issues. The more critical need is to develop the goals, service performance measures, and data analysis methods for meaningful, systematic assessment where the range of complex activity is distributed across the organization.

Expanding Services

Continual identification of unmet user needs will provoke considerations of new dimensions of service. For example, a real-time chat component may offer a solution for undergraduates who often cannot wait for virtual reference services that take one or two days to respond. Controlled expansion, targeted to primary user groups' needs, will result in clearer strategies to reallocate resources appropriately.

Cooperation and Competition

Cross-institutional service collaborations, commercial information service development, and the development of tools and user interface designs that foster independent use of digital content all have enormous potential to change the virtual reference landscape. Large, research institutions face a unique challenge to provide substantive, highly specialized, discipline-related information and research assistance to a broad user community. Academic communities are also dependent on successful relationships among units and individuals working within an institutional culture. Wise management of digital reference services should be able to identify clearly where needs of the user community can be better served through cooperative initiatives or broad-purpose, commercial information systems.

Transitioning from Call Center to Digital Reference Service

Joe Schumacher
Roseanne Schwartz
Kit Pitkin

CIESIN at Columbia University

CIESIN User Services

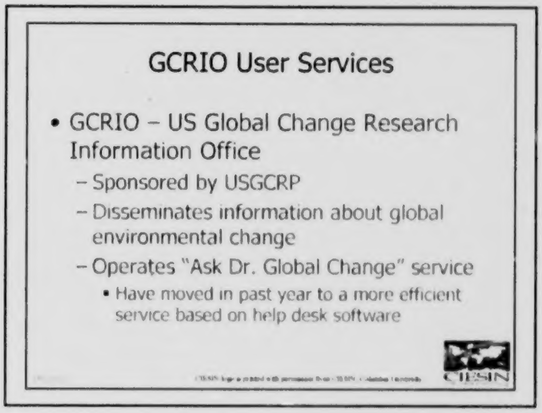
- CIESIN – Center for International Earth Science Information Network at Columbia University
- Composed of several funded projects – two have user services component:
  - GCRIO
  - SEDAC

CIESIN User Services

- Began in 1993 as product (data and services) support center
- Anticipated that most inquires would be by phone (and many of them)
  - In reality, almost all requests are via e-mail

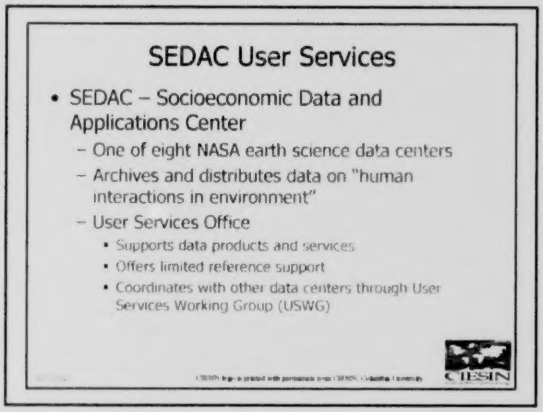
CIESIN User Services

- Staffed by:
  - Subject area experts
  - Tech support and customer service representatives – no longer
  - Reference librarian added later
- User Services Office also has outreach and reporting functions



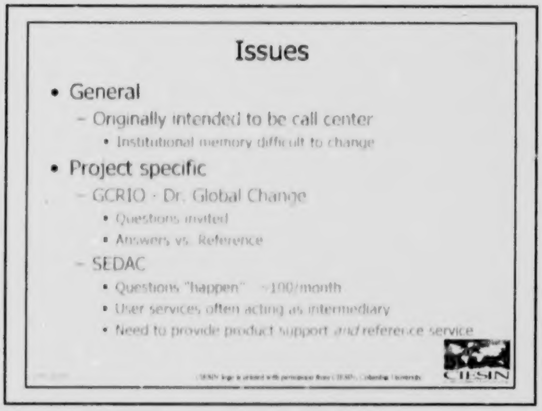
GCRIO User Services

- GCRIO – US Global Change Research Information Office
  - Sponsored by USGCRP
  - Disseminates information about global environmental change
  - Operates "Ask Dr. Global Change" service
    - Have moved in past year to a more efficient service based on help desk software



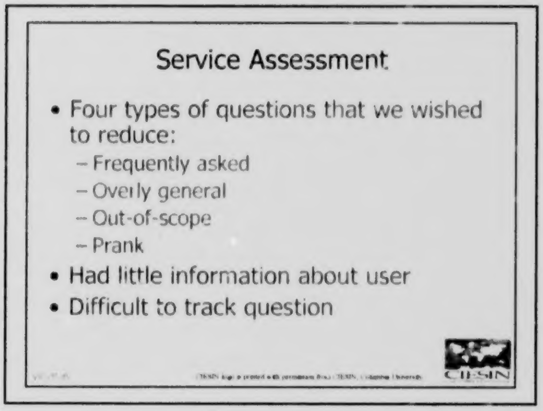
SEDAC User Services

- SEDAC – Socioeconomic Data and Applications Center
  - One of eight NASA earth science data centers
  - Archives and distributes data on "human interactions in environment"
  - User Services Office
    - Supports data products and services
    - Offers limited reference support
    - Coordinates with other data centers through User Services Working Group (USWG)



Issues

- General
  - Originally intended to be call center
    - Institutional memory difficult to change
- Project specific
  - GCRIO · Dr. Global Change
    - Questions invited
    - Answers vs. Reference
  - SEDAC
    - Questions "happen" ~100/month
    - User services often acting as intermediary
    - Need to provide product support *and* reference service



Service Assessment

- Four types of questions that we wished to reduce:
  - Frequently asked
  - Overly general
  - Out-of-scope
  - Prank
- Had little information about user
- Difficult to track question

BEST COPY AVAILABLE

Goals for Improving Service

- Become more efficient
  - Receive fewer questions
  - Offer quicker response
- Improve question quality
- Eliminate need to act as intermediary
- Move away from e-mail as prime interface

CIESIN

Becoming More Efficient

- Provide context for questions
- Frequently asked questions
  - Improve Web site to avoid questions in the first place
  - Provide database of questions and answers that can be browsed and searched
- Overly general questions
  - Set expectations
  - Provide links/references to authoritative resources

CIESIN

Becoming More Efficient

- Out-of-scope questions
  - Clearly state types of questions we will entertain and types we will not
    - Reiterate, reinforce, restate subjects for which we offer assistance
- Prank questions
  - Design interface to guide questions rather than ask for any, open-ended question

CIESIN

Implementing Help Desk Software

- Chose RightNow Web from RightNow Technologies
  - http://www.rightnowtechnologies.com/
- Interface to a database of questions and answers designed to:
  1. Encourage FAQ browsing
  2. Allow keyword searching of FAQs
  3. Ask a question

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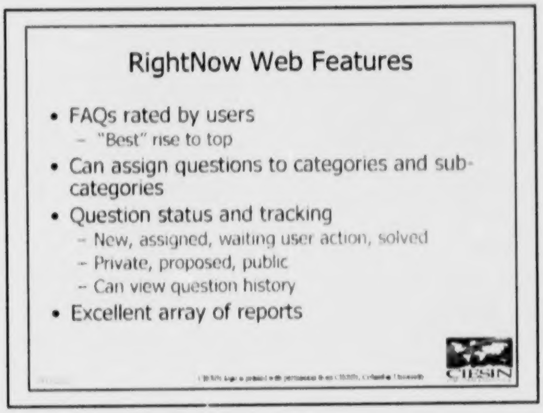

RightNow Web Features

- FAQs rated by users
  - "Best" rise to top
- Can assign questions to categories and sub-categories
- Question status and tracking
  - New, assigned, waiting user action, solved
  - Private, proposed, public
  - Can view question history
- Excellent array of reports

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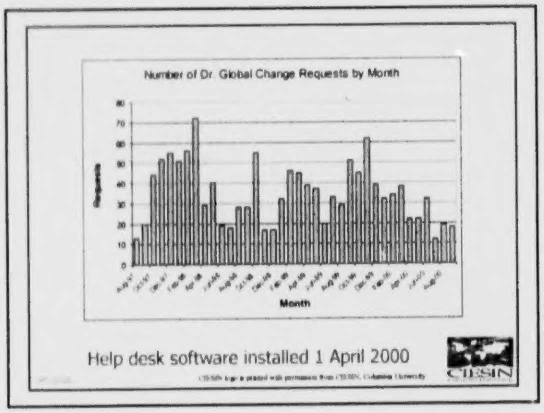

Help desk software installed 1 April 2000

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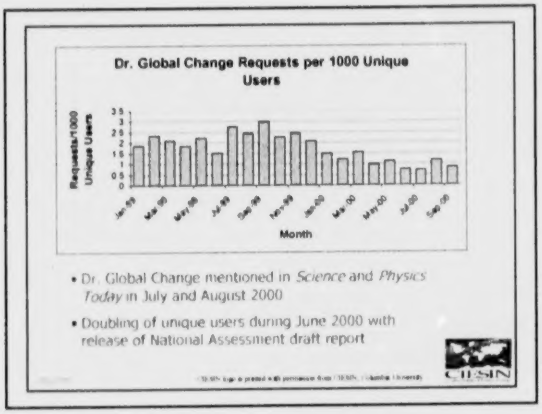

- Dr. Global Change mentioned in *Science* and *Physics Today* in July and August 2000
- Doubling of unique users during June 2000 with release of National Assessment draft report

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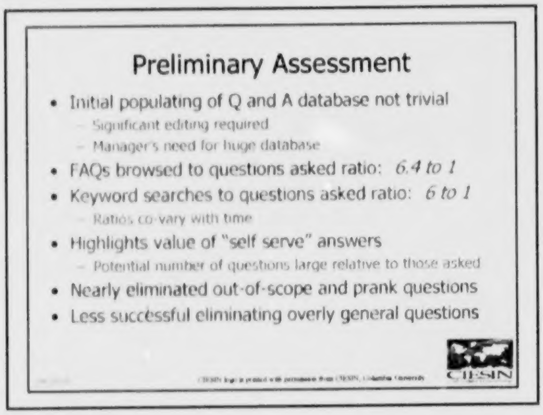

Preliminary Assessment

- Initial populating of Q and A database not trivial
  - Significant editing required
  - Manager's need for huge database
- FAQs browsed to questions asked ratio: *6.4 to 1*
- Keyword searches to questions asked ratio: *6 to 1*
  - Ratios co-vary with time
- Highlights value of "self serve" answers
  - Potential number of questions large relative to those asked
- Nearly eliminated out-of-scope and prank questions
- Less successful eliminating overly general questions

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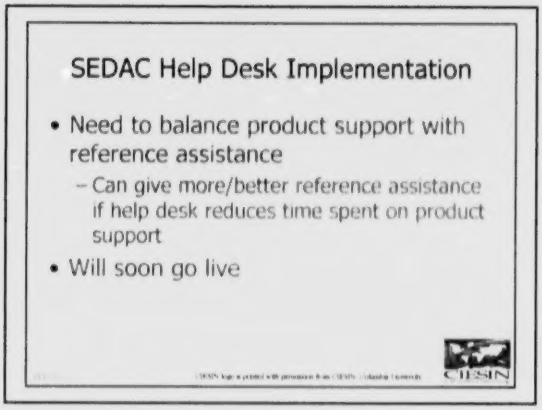

SEDAC Help Desk Implementation

- Need to balance product support with reference assistance
  - Can give more/better reference assistance if help desk reduces time spent on product support
- Will soon go live

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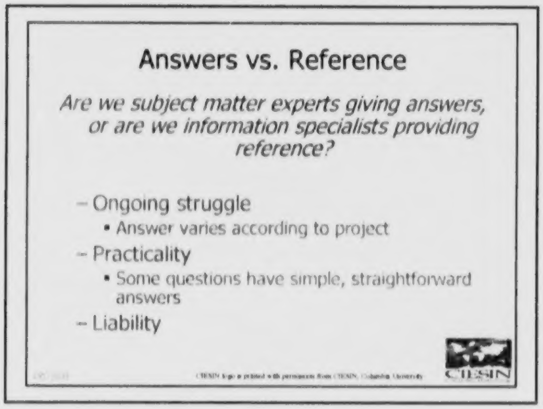

Answers vs. Reference

Are we subject matter experts giving answers, or are we information specialists providing reference?

- Ongoing struggle
  - Answer varies according to project
- Practicality
  - Some questions have simple, straightforward answers
- Liability

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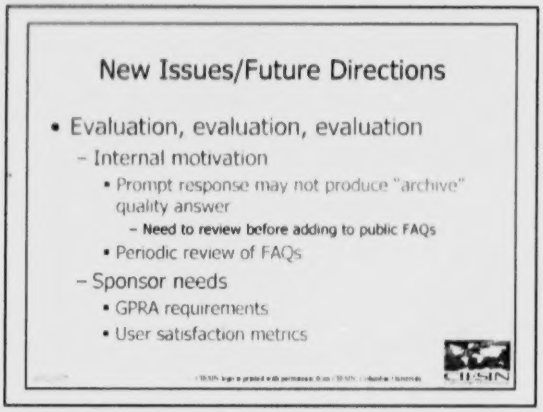

New Issues/Future Directions

- Evaluation, evaluation, evaluation
  - Internal motivation
    - Prompt response may not produce "archive" quality answer
      - **Need to review before adding to public FAQs**
    - Periodic review of FAQs
  - Sponsor needs
    - GPRA requirements
    - User satisfaction metrics

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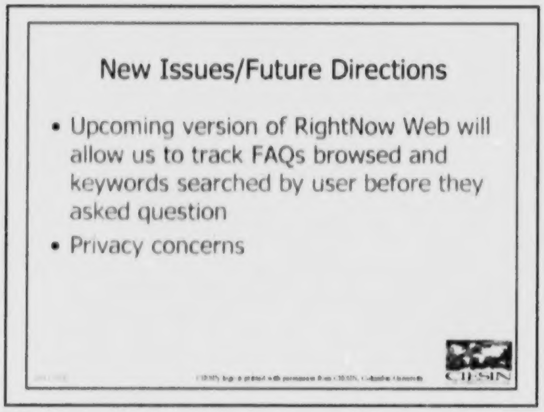

New Issues/Future Directions

- Upcoming version of RightNow Web will allow us to track FAQs browsed and keywords searched by user before they asked question
- Privacy concerns

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A Management Model for Digital Reference Services In Large Institutions

Barbara MacAdam
Suzanne Gray

Abstract

Large, decentralized information organizations face a unique set of challenges in effective management of virtual reference service. Proposed here is a model that is particularly relevant to academic libraries in large research institutions, but extendable to other types of organizations with similar characteristics. The five critical issues examined include: integrating virtual reference service with existing services; allocating fixed resources; acting as an effective advocate to secure organizational support; developing a distributed service model integrating specialized, subject-domain expertise; and targeting and serving disparate segments of the user community. These concepts and strategies will be most useful to managers in information organizations who have responsibility for reference service development and need solutions designed specifically to achieve service goals for virtual reference by working within and across the larger organization.

Introduction

Information professionals who made the assumption that virtual reference services development would share most of the challenges of traditional reference models, and roughly the same solution strategies, have quickly realized the obvious and significant differences. Moreover, large, decentralized information organizations face a unique set of challenges in effective management of virtual reference services. A sound management model applied to academic libraries in large, research institutions may have useful application to other types of organizations with similar characteristics. The factors unique to the larger organization can be neutral elements, barriers, or positive agents in any effort to develop and manage digital information services, depending on the ability to manipulate them successfully in a new initiative.

Characteristics

1. **A broad mission** - A typical academic library mission statement might be to support the research and educational endeavor of the campus, to serve the larger community for the public good, and to acquire and preserve the collection for the knowledge base of the future. While almost any activity can be justified under this mission, it is harder for any particular service initiative to demonstrate mission critical importance.

2. **Various and sometimes conflicting goals** – Conflicting goals might include: to provide timely, location-independent information assistance at the time of need; to foster information literate undergraduates; to serve as research partners with the teaching faculty; to maintain welcoming and widely accessible physical facilities; to sustain the culture of the book; and to foster the adoption of new information technology. Tensions

occur when large organizations try to turn fundamental values into operational strategies. Digital reference service must advance some clear goal to be perceived as though it is worth the resources and effort allotted; these resources and services will have been inevitably diverted from other important initiatives.

3. **Decentralization** - The work of the organization is spread over multiple units, separated by function (e.g., technical services, public services, systems, financial and personnel operations) and often isolated geographically and administratively. Large public service operations may have multiple physical service points, multiple reference departments, highly differentiated resources, variations in policy and process, and even unit-specific mission statements and goals. Virtual reference service, by its very nature, is at odds with this organizational segmentation, yet its success will depend on the manager's ability to work within existing realities in a distributed service model.

4. **Centralization** - The largest and most distributed organizations have centralized some key operations including systems support, software approval, purchasing, or operating budget. This can potentially hinder the manager's autonomy in making service decisions, establishing priorities, and controlling resources.

5. **Widely dispersed and over-committed resources** - Large organizations have large budgets and a large staff, but these are often deployed broadly and thinly across the distributed service operation. It is critical to understand the dimensions of decentralization versus centralization and build cooperation in order to develop effectively the critical mass of resources necessary to sustain a digital reference service.

6. **A non-homogeneous user community** - Faculty, graduate students, undergraduate students, alumni, the state or regional community, a global research community, corporate partners, and consortial agreements may all place varying demands on a virtual reference service. Although their needs vary, along with the information organization's perceived obligation to meet those needs, virtual reference users will inevitably represent a broader spectrum of the larger community than traditionally served. One of the most critical challenges is designing a central service gateway, balanced with a policy and operational structure that preserves the desired service focus for segments of the user community.

7. **An established set of services** - Services are highly entrenched with a history of budget support, service structures, staffing, and demonstrated importance to the user community. It is unrealistic to expect existing services (and their advocates) to just move over or relinquish energy and resources to digital reference development.

8. **Highly-specialized subject expertise** - Particularly in research libraries, the service structure depends heavily upon the research consultation role of subject specialists spread across the organization. This includes specialists of discipline-related knowledge and advanced technical expertise. Unless goals for the service are merely to provide basic information assistance, a successful model for digital reference must include ways to preserve and foster the links between users and the specialized knowledge providers.

9. **A complex institutional and organizational culture** - Large organizations present an often mystifying array of traditions, unwritten rules, territorial issues, protocols, style, and implicit values that hinder a clear understanding of the most effective methods for achieving goals. Virtual reference service grows from an environment that is dynamic, entrepreneurial, democratic, and inherently impatient. Sustaining the development and growth of a service, however, requires stability, support, and resources that ultimately only a broad-based, firmly anchored position in the organization can ensure.

10. **Historically entrenched user expectations** - Virtual reference may be perceived by some as a non-essential program draining resources, time, and effort away from the work of more traditional reference service. Faculty may deplore efforts that permit students to stay out of the library physically, and administrators may worry that staff, already hard-pressed to meet needs of primary users, are now responding to demands from users around the world.

11. **Complacency, conservatism, and inertia** - Large organizations are generally secure in their traditional success and complacent about their importance to the user community. The sheer volume of services and activity on a day-to-day basis can overwhelm efforts to identify emerging user needs and to respond in a timely way.

12. **Process** - Large organizations have a process for everything, ensuring that there is a way to get everything done, and guaranteeing that major service innovations run the risk of being over scrutinized.

13. **Pride, creativity, know-how, vision, energy, dynamism, resources** - All of the above elements reside somewhere in a large organization, especially today's research library. It is critical to marshal these qualities with the same urgency with which one would identify and deploy more tangible resources.

Turning Critical Issues into Achievable Goals

Defining an Appropriate Role and Integrating Virtual Reference Service with Existing Services

1. **Identifying service gaps** - Precisely what user needs are currently unmet? If there is a lack of reference service across long hours in small, divisional library units, or support is needed for users working primarily with digital resources, it needs to be made explicit why the best solution is not merely expanding existing information services.

2. **Confronting changing user patterns** - Has reference desk traffic gone down? More than likely, it has, since students now have 24 hour access to the Web through the campus computer labs or residence halls, and many faculty have developed a full curriculum in the Web environment, sustaining relationships with and among their students in that environment.

3. **Establishing a shared purpose and clear priorities** - The goal is not to create a digital reference desk. Presumably, the goal is to provide outstanding information services for the user community, and digital reference service is a strategy that is responsive to unmet user needs. This is the foundation that will ensure strong connections to present services.

4. **Laying an existing service element to rest** - What is the organization willing to give up? Put another way, somewhere in the array of information services lurk components that users neither need nor desire; they continue because staff is unwilling to relinquish them.

5. **Combining seasoned experience with creative innovation** - Developing projects in the digital environment takes knowledge of technology, creativity, and a zest for experimentation. Sustaining a working service requires experience, stability, dedication, and sound management. Changes in the information environment and professional education have been so profound and happened so quickly that the potential exists in most larger organizations to involve veteran and newer professionals whose synergy will ensure successful digital service development.

6. **Applying or adapting existing policies** – Existing policy typically includes safeguards for privacy of patron transactions, levels of privilege for different segments of the user community, and guidelines for referrals. Policy is designed to make the majority of transactions flow smoothly, consistently, and predictably from the user's point of view and to ensure that users are enfranchised appropriately and treated ethically and that organizational resources are expended efficiently. The degree to which virtual reference services integrate successfully with existing services is determined somewhat by the degree to which users neither lose nor gain status in the digital environment and to which existing policies remain in new services. Inevitably, there will be areas, internal and external, where existing policy will be insufficient. New policies should be consistent in values and outcomes of existing policy.

Allocating Fixed Resources Effectively

1. **Administrative authority and budget flexibility** - Virtual reference services must be sustainable, and in most organizations that means redirecting resources from an existing budget. During an entrepreneurial or pilot phase, one-time money for capital equipment, temporary staffing (e.g., interns, residents, or use of lapsed salary money), or seed/grant money from inside or outside the institution are all reasonable ways to get an initiative off the ground. A viable, long-term service relies on diverting base budget resources; this means planning, which includes working within established processes for equipment requests, reassigning existing staff, or shifting money among personnel lines. The digital reference service manager needs authority to allocate resources or the support of an administrator who does, along with the experience and confidence to make aggressive budget decisions.

2. **Staffing** - In the larger information organization, it is not realistic to build a service solely on the assumption of hiring additional staff, exclusively devoted to providing digital reference. The best staff model integrates existing staff to the appropriate degree, with enough net staffing increase to make the service viable. In the search for additional resources, late-night reference staffing might be structured to handle virtual reference queries in slow periods between patrons; staff members who traditionally have not worked evenings or weekends might be willing to provide service from home over extended hours. Digital information services in the large, decentralized organization must invariably migrate toward a distributed staffing model.

3. **Collaboration** - Fostering cooperation among individuals and units within and outside the library serves two purposes. It can produce a critical mass of staff, expertise, and other resources lacking in any individual unit. It can introduce the combined elements of flexibility and stability for service development.

Being an Effective Advocate and Ensuring Administrative, Staff, and Technical Support

1. **Gaining staff buy-in** - The quality and longevity of a digital reference service depends on the staff who provide it. It is critical that staff share a vision for information service and perception of unmet user needs. They should be involved in every step of service planning, implementation, and operation. Managers should demonstrate that they are conscious of the very real additional demands of digital reference. One should be clear as to where resources are coming from, and convey that thought is being given to long-term needs: from resources, to protecting existing service, to staff training. It should be made clear that staff will not give up their direct role with users; digital reference service can actually foster contact with their user community. The enthusiastic manager also needs to be realistic as to how quickly service development can occur and to make sure administrative zeal doesn't outpace the time and energy of committed but overworked staff.

2. **Resourcefulness, independence and risk-taking** - Ideally, every information service manager would find the information technology infrastructure, administrative support, resources, and expertise readily available to develop and sustain a digital reference service. Because larger organizations are usually running at full speed with staff and other resources fully committed, the wise manager finds ways to implement digital reference service using a low-key approach. The next critical phase of operations is to elicit higher administrative approval based on a demonstrated proof-of-concept. The manager who avoids requesting additional resources for every new service initiative will also avoid the implicit request for prior approval and the accompanying scrutiny for an endeavor in its early days.

3. **Determining useful allies including partners outside the organization** – It is essential to build a cohort of colleagues who share a vision, understanding, and enthusiasm for digital reference. Staff at any level of the organization can be helpful in many ways. Overlapping goals create strong partnerships. There may be programs underway across campus, or within the library, where digital reference service fills an

identified unmet need. Community service programs, relations with alumni, distance education, public relations, admissions recruiting, technology support/help-desk initiatives or other information services, are all examples of opportunities for cooperation which may produce anything from resources to critical affirmation of shared institutional values.

4. **Clear goals and persuasive communication** - In spite of the persistent belief that a good idea will sell itself, there is no substitute for a clear, concise statement of the goals, audience, and projected benefits to the user community for a virtual reference service. Because it is new, requires considerable development of the service underpinnings (software/network support, staffing, policy), and suffers from the incomprehensible but pervasive belief that digital content fosters completely independent users, digital reference service requires a justification where traditional services go unchallenged, despite declining statistics.

5. **Demonstrable success** – Evidence of success can include steady (or exponential) growth in use, proof that the service is reaching a primary user community, and degree of user satisfaction. These will help illustrate that the service is worth the allocation of resources, effort, and attention required. Any successful new endeavor generates a buzz of good will; administrators will value and affirm a service with demonstrable significant outcome for the campus, colleagues will want to participate, and the user base will grow by word of mouth.

6. **Evaluation** - The first obligation in managing a digital reference service is to provide outstanding service to users. Data, including patterns of use by targeted segments of the primary user community, have value in providing management information for ongoing service development and improvement. The second obligation is to provide tangible evidence that the virtual reference service is meeting a critical need, thus justifying the continued allocation of resources. The potential for research is enormous in this area, with a wealth of data waiting to be tapped. However, the manager who honors the first two obligations will ensure the success and viability of a digital reference service and be in a position to engage in the latter activity.

Establishing a User-Centered Service Model that Balances Centralization and Decentralization

1. **One-stop shopping** - Users need a central gateway to digital reference service. One option is to offer a button labeled "Ask Us" or "Have a Question?" on the organization's Web site. This could help consolidate existing e-mail boxes and replace a variety of Web contact points. In a highly distributed organization, the central representation of digital reference services can be a significant opportunity to create a visible, easy to use, and consistent information service point for users.

2. **Integrating subject-domain expertise** - A central digital reference service does not, and should not, supplant the relationship between library subject specialists and the faculty and students they serve. The virtual reference desk can operate as a clearinghouse

and referral point for users who do not know whom to contact, and actually create new links between librarians and users. Faculty who might normally go directly to a particular librarian for discipline-specific consultation may prefer to use a central service for more general questions or when the staff member is not available. There needs to be agreement across the organization that a significant amount of reference activity will continue to transpire directly between librarians and users, but that subject specialists will anticipate and be prepared to respond to inquiries through the central service. The software/network environment should support distributed operations.

3. **Referral structure** - Referrals present a different set of problems in digital reference. Because many virtual reference services make a commitment to answering questions within a set time frame, monitoring the response time is critical. In a distributed environment, those specialists within the organization who are not participating directly in the centralized reference service may have different goals and standards for their service. Once the question is forwarded to another service point, the centralized service loses control over the quality of the answer and the response time.

This problem can be dealt with on two levels. The first is to gain an understanding of the service policies for all of the specialized virtual reference service points in the organization. Once the policies are understood, there may be room for negotiating common standards of service. However, if the specialized library is unwilling to handle requests from those outside their primary clientele, the centralized service may need to avoid referring these requests to that service point. A second strategy for handling referrals is to clearly notify the user that the query has been turned over to the specialized library. Providing a Web address for the specialized service point allows the user to follow up on the inquiry if a timely response is not forthcoming.

4. **Setting and achieving consistent response goals** - Users expect a consistent, predictable turn-around time for the questions they submit. Their expectations are often colored by the possibility of immediate access of content allowed in the Web environment. Typical response goals might include immediate confirmation of inquiry (system generated), a response or initial brief response (for more complex questions), or a message that the question is being referred, all within 24 hours, with a target of final response within one week for all questions. The best practice is to pick the shortest but most realistic response time and clearly communicate this to the user. Otherwise, users may be discouraged by a long wait or disappointed when the service fails to respond within the stated timeframe. Citing alternatives on the Web site (e.g., calling the reference desk for urgent, quick answers) will help meet user expectations.

5. **Staff training and development** - Beyond reference expertise, staff participating in virtual reference service need to have a clear understanding of the software/information technology being used to support operations, and the specific goals, policies and guidelines for service. Within this framework, they will make judgments in constructing an appropriate response. As more staff and units across the larger organization participate in the service, it is important to build a shared understanding of service goals. Staff may find they prepare long responses in the virtual environment. Benchmarks are useful to

define how long an average response should take before a referral or other action occurs, and models of well-crafted responses can help even experienced reference librarians develop communication skills in an electronic mode.

6. **Quality control** - The most fundamental way to ensure that digital reference service is consistently excellent is to define realistic service goals, accompanied by workable policies and procedures, with participating staff fully cognizant and invested in them. A digital reference service in a large research library must be predicated on the assumption that reference staff are expected to work with autonomy and to tailor responses to the specific situation. A well-designed Web form can elicit enough information from users to help offset the lack of a true reference interview. Reference styles vary among individuals. Staff in an undergraduate library, for example, might reasonably be expected to construct answers that are more instructional in nature when responding to students, while medical library specialists emphasize speedy, complete information to their faculty. Monitoring activity periodically and offering models for good responses, along with a set of standard answers for common requests are also effective strategies.

Targeting Services to the Key Segments of the User Community

1. **Needs analysis** - What unmet information service needs do the various segments of the user community have? The first step in targeting services is to clearly define the primary clientele and the institutional obligations to a wider community. Undergraduates may need real-time, immediate assistance when working from a residence hall or lab in the electronic environment. Faculty on sabbatical or doctoral students at a remote research site, for example, have other needs.

2. **Tiered services** - Because a wide range of users are attracted to a digital reference service, traffic from non-primary clientele needs to be controlled. Often the Web site of a large research library attracts non-affiliated visitors from around the world whose questions may not be directly related to the institution's collection or mission. Closing the service off to those from the outside is one approach; however, this is often contrary to institutional policy regarding telephone and face-to-face reference service, which usually does not require proof of affiliation from users. Barriers such as time, distance, or phone charges minimize the number of non-affiliated users of traditional reference services, but virtual reference services break down these barriers by providing easy, often low cost access to the service.

At most institutions, resources allocated to virtual reference services will not allow staff to fully meet the needs of non-primary clientele. Tiered service can create barriers for non-primary users while providing easy access to primary clientele. Services can be tiered based on response time, the amount of information requested of the user, and the quality of the answer provided. For affiliated users, the goal is to continue to decrease the response time in order to make the service as convenient as possible. For non-primary clientele, a more significant wait, perhaps of a week or more, may encourage them to satisfy their information need through another service. The use of separate forms for different user groups can also create barriers to non-primary clientele. Requesting additional information from these users helps to provide a clearer context for answering, while also requiring additional effort on the user's part to generate a query. Additionally, primary clientele are provided with an in depth response that is frequently instructional in nature, while non-primary clientele may be provided with a few Web sites or a referral to a specific search engine. In order for these barriers to be effective, this policy must be clearly communicated to users on the virtual reference Web site. Additionally, staff must be trained on the service goals for each category of user to maximize efficiency.

Tiered service allows for better allocation of staff time to handle incoming queries. Different types of staff can be utilized to handle the different categories of requests generated by a tiered service.

Current Challenges

The Perfect Software

A still elusive goal for large-scale information services is the complete and seamless integration of digital reference operations. The ideal management software would support Web-based asynchronous and real-time interaction and telephone and site-based, face-to-face reference; facilitate the exchange of digital content; provide flexibility to partition or centralize the environment as needed in a distributed service organization; and provide the tracking, archiving, search capability, and use-report capabilities critical for the effective management of ongoing operations.

Intellectual Freedom, Privacy, and Access

The digital reference environment turns each of these issues into a double-edged sword. Users may communicate anonymously with greater ease and may engage in more egregiously offensive or inappropriate behavior. At the same time it may be more difficult to protect an individual's privacy when detailed information may be captured in the initial Web form, and queries are referred or archived. Network authentication, or licensing agreements, may present unexpected barriers to service access. On the other hand, the accessibility and visibility of the organization's Web site will expand the user community, requiring hard decisions about balancing the public good with the need to serve primary clientele.

Evaluation

Virtual reference service will invariably grow even in the absence of aggressive promotion, but the real challenge is to demonstrate effective and high-demand service for the primary user community. Collecting detailed use and user statistics depends on adequate data capture and reporting capability within the system, but may present another set of confidentiality issues. The more critical need is to develop the goals, service performance measures, and data analysis methods for meaningful, systematic assessment where the range of complex activity is distributed across the organization.

Expanding Services

Continual identification of unmet user needs will provoke considerations of new dimensions of service. For example, a real-time chat component may offer a solution for undergraduates who often cannot wait for virtual reference services that take one or two days to respond. Controlled expansion, targeted to primary user groups' needs, will result in clearer strategies to reallocate resources appropriately.

Cooperation and Competition

Cross-institutional service collaborations, commercial information service development, and the development of tools and user interface designs that foster independent use of digital content all have enormous potential to change the virtual reference landscape. Large, research institutions face a unique challenge to provide substantive, highly specialized, discipline-related information and research assistance to a broad user community. Academic communities are also dependent on successful relationships among units and individuals working within an institutional culture. Wise management of digital reference services should be able to identify clearly where needs of the user community can be better served through cooperative initiatives or broad-purpose, commercial information systems.

Conferences

The Virtual ReferenceDesk
Supporting Internet Q

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Facets of Digital Reference

The Virtual Reference Desk
2nd Annual Digital Reference Conference
October 16-17, 2000 - Seattle, Washington USA

Conference Proceedings

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Managing and Improving Digital Reference Service: Case Study

Donna Reed
Multnomah County Library

Presentation

Introduction

Multnomah County Library launched Ask Us! Online, a digital reference service, to the public via its Web site (http://www.multcolib.org/) in September 1999, one year after its internal launch. At the time the service went live to the public, library staff had answered over 10,000 questions submitted through internal mechanisms. By September 2000, library staff had answered approximately 17,000 digital reference questions.

The service, then called Information Dispatch, was initially launched in 1997 as part of a grant-funded project. At that time, it consisted of a Web form with no back end. It was discontinued after six months because the library was reorganizing and the central library was relocating. In 1998, the library formed a team of reference librarians, administrators and technical staff to begin investigating the possibility of further developing the project. The result was the creation of a Web-based database-driven system running on an Oracle database with a Perl scripted front end.

The development team saw the project through to the beta stage and was replaced by a second team that refined the service, documented procedures, managed the training, and oversaw the internal launch. This shift happened because of staff changes and the addition of new staff. Recommended practice would be to keep one team in place and to make replacements as needed. It is critical that there are representatives on the team from all stakeholder groups throughout the system at all times.

The first year of the service was spent further refining the service and exploring issues around the workflow change. During this time, administrative staff held a series of focus groups in order to hear staff concerns and make further refinements where possible. Once the service went live to the public, the library created an oversight group called PIER (Pioneers in Electronic Reference) to act as stewards for the service and to make sure that concerns, needed improvements, policy changes and training issues were addressed on an ongoing basis. The PIER group also maintains an intranet presence and tracks statistics for the service. A database driven statistics program was put in place in August 2000 (http://www.co.multnomah.or.us/reflib/stats/getstats.html). It allows the library to track many aspects of the questions and generates reports on the fly.

Currently the PIER Group and the library's reference committee are looking to the future to decide how the library should continue to handle digital reference. The PIER Group is discussing needed improvements and ongoing policy and procedural issues. The library is exploring whether to continue upgrading the existing system or to purchase commercial software. Staff members are interested in technologies supporting chat and collaborative browsing. The library has recently become a member of the Collaborative Digital Reference Service (CDRS), an initiative organized by the Library of Congress, in order to explore the possibility of a library-based reference network. (See http://www.loc.gov/rr/digiref/ for details). These explorations may take the library in any number of directions and the only certainty is that digital reference is here to stay.

Home	Contact Us	Search Site	Site Map	For Kids	About VRD
Conferences	VRD Network	AskA+ Locator	DIG_REF	AskA Consortium
Publications	Resources	Training	What's New?	VRD Learning Center

Facets of Digital Reference

Managing and Improving Digital Reference Service--Case Study

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Find out more about this conference

Next

A brief history of the project

- One upon a time there was a grant
- Then we tried again
- There were tax cuts
- And we reorganized
- Now we have support

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2nd Annual Digital Reference Conference

The Development Process

- **WebRef Team**
  - Made up of reference, tech and administrative staff
  - Developed beta
  - Tested beta internally
- **Information Dispatch Group**
  - Suggested refinements
  - Renamed service
  - Created mandatory staff training
  - Created initial documentation
  - Oversaw internal launch
- **Pioneers in Electronic Reference (PIER) Group**
  - Oversaw public launch
  - Manage post public launch
  - Discuss development issues
  - Maintain documentation
  - Keep eyes to the future

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Birth of Ask Us! Online

- Internal launch September, 1998
- Public launch September, 1999
    - 10,000 questions answered by public launch

Technical info

- Oracle database
- Perl scripted front end

This is what the staff screen of Ask Us! Online looks like.

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Life after birth -- or getting past the terrible twos

PIER Group formed -- charged with:

- Stewardship of the service
- Data gathering
- Ongoing development of policies & procedures
- Training issues
- Envisioning the future

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Stewardship

- Providing a mechanism for staff input
- Overseeing how the service is functioning
- Troubleshooting problems

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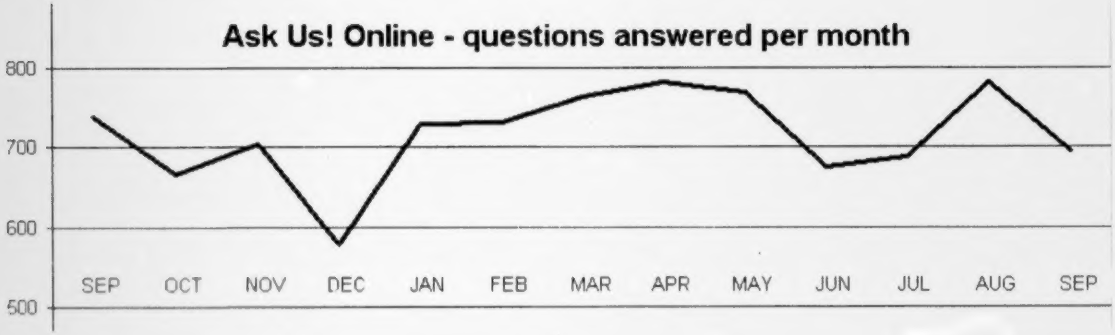
Datagathering



- **Worrying about number of questions asked**
    - **What if we're flooded with questions?**
    - **How do we load balance?**
    - **Can we respond?**
- **Creation of the statistics program**
- **Keeping an eye on impact to staff**

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Ongoing development of policies & procedures

- Incorporating new policies
- Clarifying when necessary
- Maintaining the documentation
    - Procedures on the intranet

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Training

- **Development of classes**
- **Updating curriculum**
- **Incorporating training into orientation**
- **Identifying training goals**

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The Future -- So What's Next?

- Refinement of existing software
- Conversion to commercial software
- Participation in LC's CDRS project
    - http://lcweb.loc.gov/rr/digiref/
- Additional forms of communication -- chat, collaborative browsing...

Resources

- A list of resources maintained by Peggy Hadid, Multnomah County Library

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Tips -- or things to avoid

- Make sure there is administrative support for the project
- Spend a lot of time pulling together the development team
- Spend a lot of time pulling together the development team
- Spend a lot of time pulling together the development team
- Spend a lot of time pulling together the development team
- Make sure to include a lot of reference staff
- Expect team members to communicate with staff
- Elicit input from non-team members
- Choose software solution late in the game
- If building in-house, beta-test with a small sub-set of staff
- Understand that the service will need nurturing
- Create oversight team post-launch

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2nd Annual Digital Reference Conference

Questions?

Web address for this presentation:
http://www.multcolib.org/products/vrd

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Communication Theory and the Design of Live Online Reference Services

Susan Ware
Penn State – Delaware County

Presentation

Introduction

Social Presence Theory & Media Richness Theory

Research on the impact of emerging computer technologies on communication in organizations led to the development of social presence theory (Short, Williams, & Christie, 1976) and media richness theory (Daft & Lengel, 1986). Social presence is the degree to which a medium is perceived to convey the actual presence of communicating participants. A medium's richness is measured by its capacity for immediate feedback, multiple cues, language variety, and personalization. These and more recent computer-mediated communication studies confirm that:

- Social presence is essential for intense and relational computer-mediated communication,
- Richer media facilitate more accurate and meaningful transmission of ideas,
- Individuals prefer to solve collaborative, equivocal tasks through a medium that is able to sustain relationships and facilitate spontaneous, interactive communication.

Live Online Reference Service

The negotiation of complex reference queries is an interpersonal and collaborative task. Face-to-face reference interviews involve non-verbal cues that invite queries, open questions that encourage elaboration, closed questions that clarify the query, search strategy planning, and search demonstrations to prepare researchers to continue independently. With the growth of digital libraries in higher education, increasing numbers of researchers are searching library collections from remote locations, and the need for online point-of-use reference service is mounting. Online reference service that is comparable to face-to-face service requires real-time interactivity, high social presence, and media richness. The leading models of Web-based customer service software offer features that support high social presence and prompt synchronous interactivity. Those features include live text-based chat, stored scripts, Web page push, browser sharing, and forms/applications sharing. Easy access, authentication, and searchable archives are additional features that support efficient and effective management of a live online reference service. This presentation suggests that live online reference service is the next frontier for digital libraries. Only when reference librarians and researchers can engage in intense relational query negotiation online will digital libraries become full participants in technology-enhanced teaching and learning in higher education.

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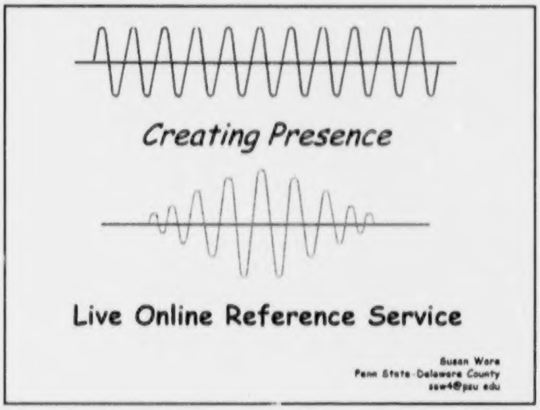

Creating Presence

Live Online Reference Service

Susan Ware
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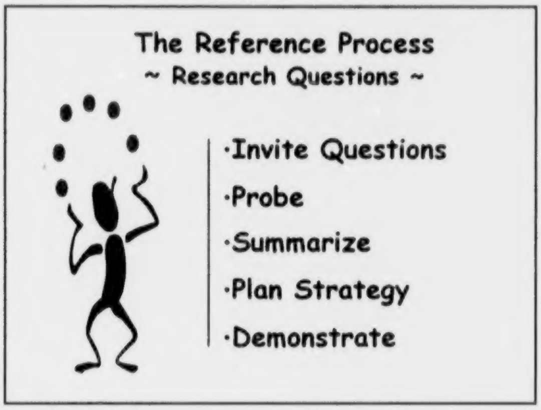
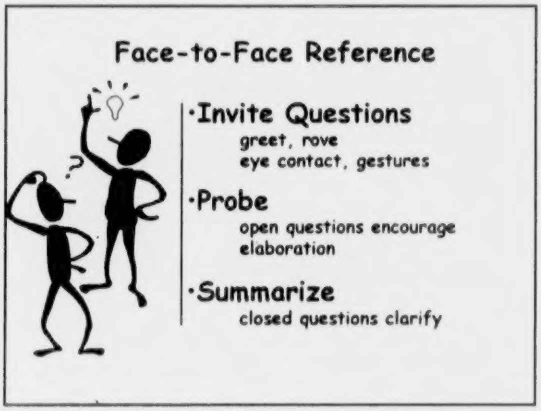


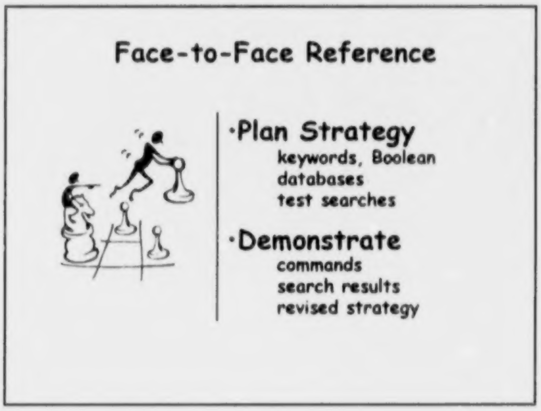
The Reference Process
~ Research Questions ~

·Invite Questions
·Probe
·Summarize
·Plan Strategy
·Demonstrate



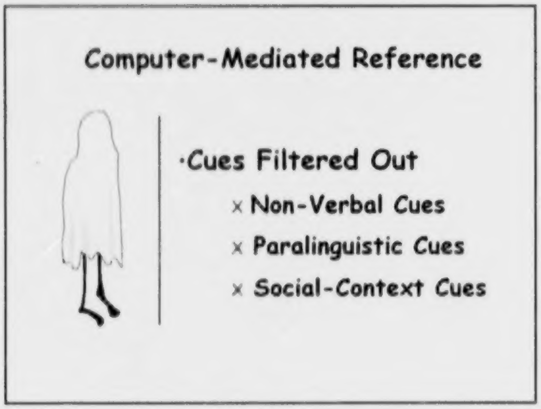
Face-to-Face Reference

·Invite Questions
  greet, rove
  eye contact, gestures
·Probe
  open questions encourage elaboration
·Summarize
  closed questions clarify



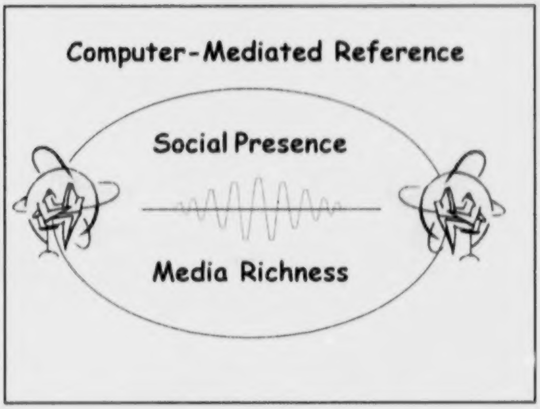
Face-to-Face Reference

·Plan Strategy
  keywords, Boolean
  databases
  test searches
·Demonstrate
  commands
  search results
  revised strategy



Computer-Mediated Reference

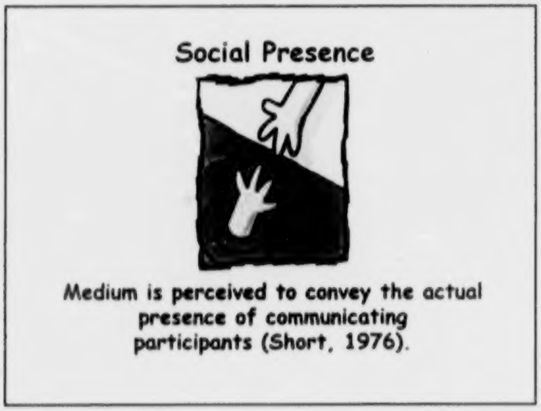
- Cues Filtered Out
  - × Non-Verbal Cues
  - × Paralinguistic Cues
  - × Social-Context Cues



Computer-Mediated Reference

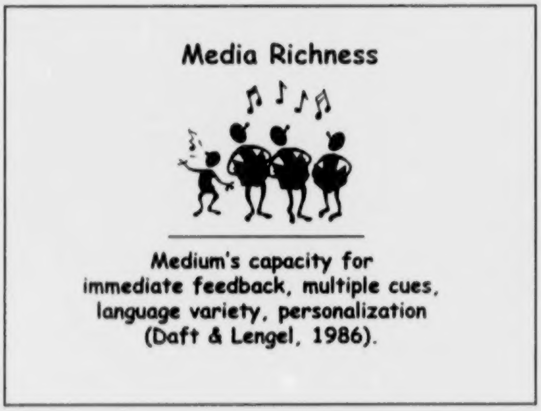
Social Presence

Media Richness



Social Presence

Medium is perceived to convey the actual presence of communicating participants (Short, 1976).

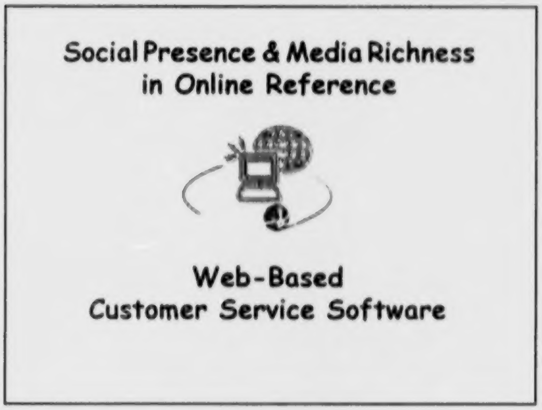


Media Richness

Medium's capacity for immediate feedback, multiple cues, language variety, personalization (Daft & Lengel, 1986).

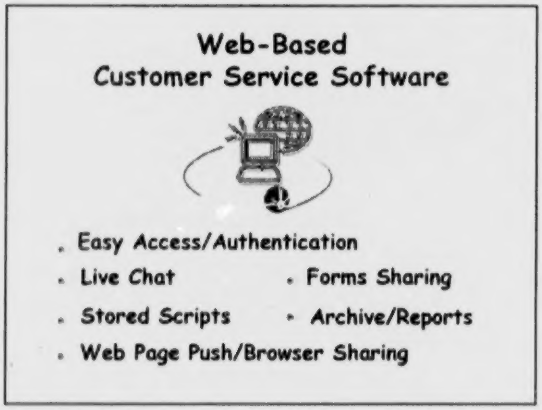
Guiding Principles

- *Social presence is essential for intense and relational computer-mediated communication.*
- *Richer media facilitate more accurate and meaningful transmission of ideas.*
- *Tasks that involve interpersonal skills and negotiation demand high social presence and media richness.*
- *Individuals prefer to solve collaborative, equivocal tasks in a medium that can sustain relationships and facilitate spontaneous, interactive communication.*



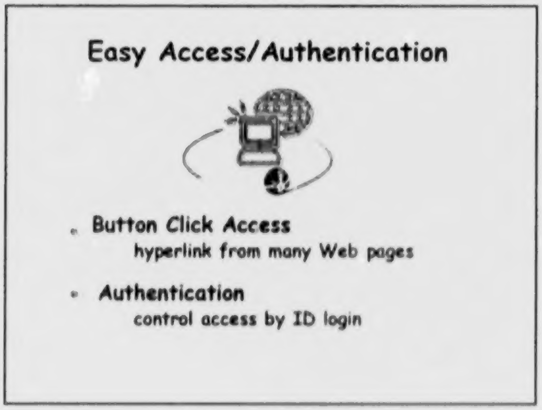
Social Presence & Media Richness in Online Reference

Web-Based Customer Service Software



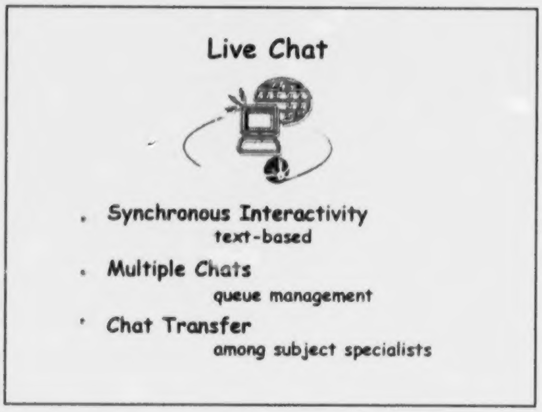
Web-Based Customer Service Software

- Easy Access/Authentication
- Live Chat
- Forms Sharing
- Stored Scripts
- Archive/Reports
- Web Page Push/Browser Sharing



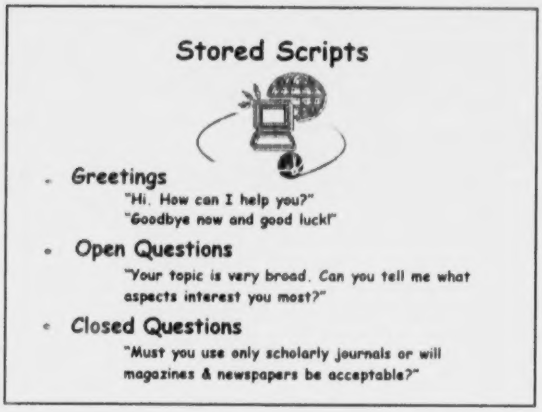
Easy Access/Authentication

- **Button Click Access**
  hyperlink from many Web pages
- **Authentication**
  control access by ID login



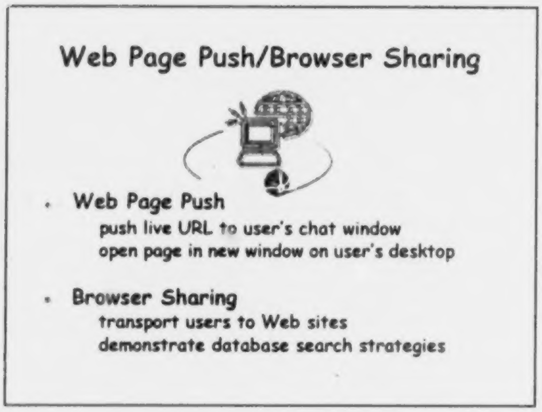
Live Chat

- Synchronous Interactivity
  text-based
- Multiple Chats
  queue management
- Chat Transfer
  among subject specialists



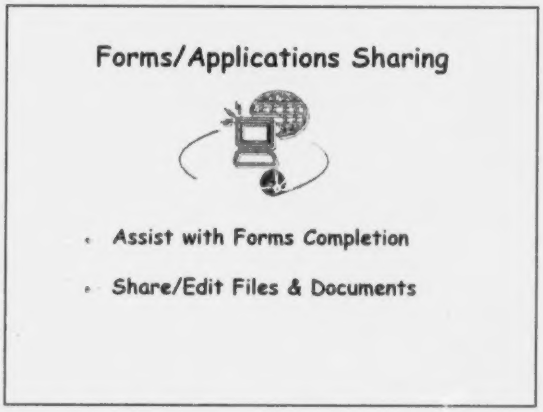
Stored Scripts

- Greetings
  "Hi. How can I help you?"
  "Goodbye now and good luck!"
- Open Questions
  "Your topic is very broad. Can you tell me what aspects interest you most?"
- Closed Questions
  "Must you use only scholarly journals or will magazines & newspapers be acceptable?"



Web Page Push/Browser Sharing

- Web Page Push
  push live URL to user's chat window
  open page in new window on user's desktop
- Browser Sharing
  transport users to Web sites
  demonstrate database search strategies



Forms/Applications Sharing

- Assist with Forms Completion
- Share/Edit Files & Documents

Archive/Reports

- Searchable Transaction Archive
  - share transcripts with users
  - use for reference training
  - track problems
  - prepare management reports

Libraries Offering
Live Chat Reference Services

ELITE Project: Library Chat Services
  - type of library
  - chat software sites

LiveRef(sm): A Registry of Real-Time Digital Reference Services
  - type of library
  - chat software sites

Live Online Reference Service

Social Presence

Media Richness

- Invite Questions
- Probe
- Summarize
- Plan Strategy
- Demonstrate

Live Online Reference Service

The Next Frontier
for Digital Libraries

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Current Research in Digital Reference

Joe Janes
University of Washington, Seattle

Presentation

Introduction

This presentation provides a summary of research findings and ongoing projects in digital reference. Included are studies on the nature and scope of digital reference services in public and academic libraries, surveys of attitudes of reference librarians about technology and reference, and notions of how reference practice may be changing. Questions for future research are explored as well.

Current Research in Digital Reference

Joseph Janes
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features and aspects: the Web

"The Web as a Reference Tool: Comparisons with Traditional Sources" (w/Charles R. McClure), *Public Libraries* 38(1), 30-39, January/February 1999

accuracy and speed of answers roughly comparable

Web: more sources used (3.56 v. 2.77)

attitudes: non-Web sources judged slightly more authoritative, of higher quality

features and aspects: academic libraries (AL)

"Digital Reference Services in Academic Libraries" (w/David Carter and Patricia Memmott), in *Reference and User Services Quarterly* 39(2), 145-150, Winter 1999

45% of academic libraries offering digital ref service

larger libraries more likely to

½ linked from front page, mostly e-mail/simple web form

policies: turnaround time, users, questions (each >.50)

public schools more likely to have a service, policy on questions; private schools more likely to have tech barrier

features and aspects: public libraries (PL)

replication of academic library study in PLs

$n = 352$, stratified by population served, >10,000, ≥ 1 librarian

Web sites investigated March/April 2000

81% of PLs had Web sites (293)

of those, 64 had a service (12.8% weighted overall)

56% directly linked from home page (44% not)

E-mail/simple form most common, detailed form 25%; technology more sophisticated as size of community increases

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features and aspects: public libraries

lower incidence of policies

highest incidence in largest libraries (39%); lower in smaller (10%)

very few FAQ/FARQ pages (9), mostly policy

detailed form questions: where live, phone number, grade/age/level, need-by date, sources tried

also: where did you see this, company/institution, 1st time user?, library card #, branch

features and aspects: public libraries

other things

- if you need quicker help, call; genealogy is special (call, come in, regular mail only, go to historical society); confidentiality; how to get an e-mail account

2 forms exactly the same

policy on users:

- community residents only, or questions about community/area/collections

features and aspects: public libraries

names: diversity, jargon, inconsistency

28 different titles at top of pages (most frequent Ask a/the Librarian)

25 required 2 clicks to get to page, 18 different names on home pages (incl. "Feedback", "Adult Services", "Using the Library")

17: name in link is different than title of page sent to

12: *3 different names*

experiences, opinions and attitudes

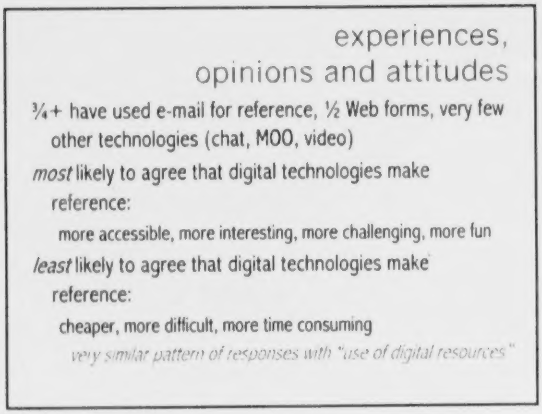
national survey of reference librarians

n = 1548 (cluster sample)

5-page survey

648 responses rec'd (RR = 42%)

preliminary results ONLY



experiences, opinions and attitudes

¾+ have used e-mail for reference, ½ Web forms, very few other technologies (chat, MOO, video)

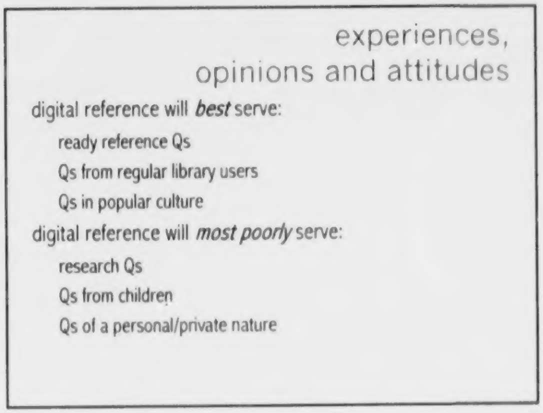
most likely to agree that digital technologies make reference:

- more accessible, more interesting, more challenging, more fun

least likely to agree that digital technologies make reference:

- cheaper, more difficult, more time consuming

very similar pattern of responses with "use of digital resources"



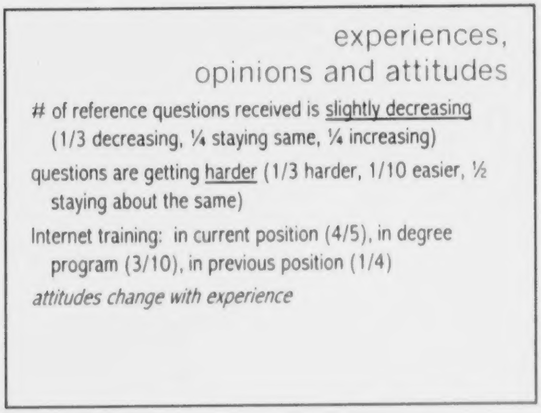
experiences, opinions and attitudes

digital reference will ***best*** serve:

- ready reference Qs
- Qs from regular library users
- Qs in popular culture

digital reference will ***most poorly*** serve:

- research Qs
- Qs from children
- Qs of a personal/private nature



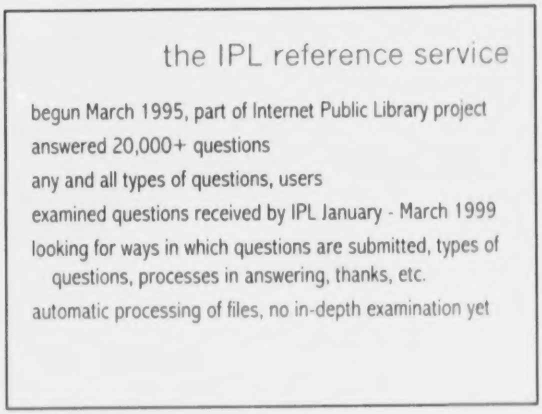
experiences, opinions and attitudes

# of reference questions received is slightly decreasing (1/3 decreasing, ¼ staying same, ¼ increasing)

questions are getting harder (1/3 harder, 1/10 easier, ½ staying about the same)

Internet training: in current position (4/5), in degree program (3/10), in previous position (1/4)

attitudes change with experience



the IPL reference service

begun March 1995, part of Internet Public Library project

answered 20,000+ questions

any and all types of questions, users

examined questions received by IPL January - March 1999

looking for ways in which questions are submitted, types of questions, processes in answering, thanks, etc.

automatic processing of files, no in-depth examination yet

IPL results

3,022 questions received; 68% via form ("interview"), 26% via e-mail, 5% other forms

most frequent subject for question chosen by user: Other/Misc (42% of questions from form)

next: Education, Science, Humanities, Government/Law, Business, Libraries/Librarians (3-6% each)

24% identify as businesspeople, 11% as teachers, 7% as librarians, 36% as "for a school assignment"

IPL results

users on form asked to specify whether they want factual answer or sources to help in answering

IPL administrators have the option of reversing this decision based on their expertise, opinion

reversed 7% of "sources" to "factual"

reversed 40% of "factual" to "sources"

IPL results

the software used by IPL allows question answerers (students, staff, professional volunteers) to post internal-only messages (followups)

34% of questions had 1 or more followups from the answerer (max 10, avg. 0.63)

25% of questions had 1 or more followups from others (max 8, avg. 0.44)

other internal flags: NEED_HELP (3.2%), ASK_INFO (4.0%)

30% of patrons asked for more information never responded

IPL results

time to answer (from question received to answer sent)

average	2.96 days (s.d. 2.70)
Q1 (25%ile)	0.77
median	2.05
Q3 (75%ile)	4.89

factual: 2.10 days, sources: 2.31 days (no sig diff)

fastest: factual questions from e-mail (1.69 days)

slowest: sources questions from e-mail (2.38 days)

IPL results

unsolicited thanks received on 19.7% of questions

factual 24.4%, sources 18.0% (sig at .001)

Thank rate by subject area of question:

LIB 26.2, MUS 25.9, EDU 23.8, LIT 22.3, HUM 22.2

PF 4.0, FARQ 3.0

IPL results

Thank rate for questions answered in <2.05 days (median): **18.4%**

Thank rate for questions answered in >=2.05 days: **22.6%** (sig .01)

Thank rate for questions answered before posting: **10.8%**

Thank rate for questions (not answered before posting) with 1+ followups: **28.9%**

Thank rate for questions with no followups: **16.9%**

analysis

users have difficulty with assigning subject areas, deciding on nature of answer

e-mail possibly good for quick questions, form/interview better for sources/research type questions

dropout rate: due to getting answer elsewhere, thin connection with users, they don't care??

thanks highest from factual questions, humanities areas, librarians and businesspeople, questions that took longer to answer, with more internal activity

evaluation of ask-an-expert services

report to come in following session (Hill & Rolfe)

sent questions to 20 .com and 20 .org sites

factual, sources, scope Qs

look at response rate, time to answer, answering Q asked, verifiability, would use again, characteristics of services

fascinating results

thoughts & questions

45% of ALs, 13% of PLs doing digital reference—should that be higher?

½ not linked (hiding)—why? should they be?

bigger libraries have more services, more tech—resources are more important but not overwhelmingly

no FAQs—why not?

minimal interviews (25% of PLs detailed forms)—why not?

stop weaseling (time policies), confusing (name changes)

themes

reaction of more stuff and greater use of stuff

reflection of setting, clientele, expectations, context

facilitation, empowerment, education of users

adoption of technology

librarians are ready (training, interesting/challenging/fun)

but don't see panacea (no cheaper or quicker)

limitations, boundaries, policies—sticking in our toes

hiding, confusing, weaseling (yet accessibility 1st on survey)

fewer harder questions

implications

maybe fewer harder questions is the answer

easier to ask questions, different kinds of questions (harder, "research" questions; ok (?) to have slower response times)

use technology as medium and tool

optimal allocation of most precious resource

rethink the "reference transaction" as an ongoing process

partnerships with experts

break the boundaries of library as place yet maintain the values, heritage, knowledge there

Digital Reference Standards

Brett Butler
Infour

R. David Lankes
Information Institute of Syracuse

Introduction

With the growth of digital reference services, more and more Internet-based questions and answers are generated in a variety of formats. This section focuses on the need for standard representation of digital reference transactions for tracking and sharing this valuable data. Two current projects to define standard formats for digital reference data are highlighted: the Knowledge Bit, from AnswerBase and other organizations, and Question Interchange Profile (QuIP), from the Virtual Reference Desk Project. Implications of these standards development activities are also discussed.

KnowledgeBit: A Database Format for Reference by Brett Butler

Question Interchange Profile (QuIP): Metadata for Cooperative Reference by R. David Lankes

KnowledgeBit: A Database Format for Reference
Version 2.0

Brett Butler, Publisher
AnswerBase.net

Abstract

This paper examines the need for a common, standard data format for the management of reference transactions. This need is discussed from two perspectives: that of major research libraries and that of AnswerBase Corporation (ABC), a Web-based digital publisher.

In library terminology, reference transactions are the questions and answers that flow between patrons and staff; these transactions increase through electronic means. To AnswerBase Corporation, a new publisher that captures and organizes questions commonly asked of librarians, these transactions cumulatively represent the patrons' demand for information in a new and powerful way. This paper describes and defines the Knowledge Bit reference format, designed jointly by AnswerBase libraries including the Library of Congress and the National Agricultural Library, to capture quality content from their reference work.

A Combined Format for Access and Delivery
Queries, Responses, and Metadata

In order to develop its AnswerBase reference desk support and publishing system (see www.answerbase.net), ABC undertook a review of the literature on the reference process, the reference interview, and the related value added processes. Based on results from the literature review, ABC designed a database format (with notable help from the Library of Congress' Collaborative Digital Reference Service, which organized a design and planning seminar in September 1999) that was capable of growth yet produced accurate answers. This effort resulted in the creation of the Knowledge Bit (KBIT) format, which defines a new kind of standard.

Queries and Questions

A directly framed question (e.g., "How deep is a fathom?") has a direct answer (e.g., "six feet"). An equally direct question (e.g., "How deep is the ocean?") does not have a single direct answer. The appropriate response would be an essay on the depth variations in oceans, a qualified response discussing individual oceans, or a reference to a more detailed or authoritative source discussing the whole issue. Conversely, there are implicit questions (e.g., "My car won't start"), which an automated help-desk system would translate into a question (e.g., "How do I get my car started?"). This paper describes both questions and problem statements as queries within the KBIT format.

Responses and Answers

Answers may be defined herein as effective responses to a problem statement. Answers that are objectively agreed to be accurate or factual fit within this definition (e.g., a fathom is six feet). Answers that represent expert or informed knowledge (i.e., answers by someone holding appropriate knowledge) are answers even if they are long, conditional, or express limitations. Answers that only guide or direct are at the outer boundary of the definition. Opinions, chat, and gossip are not considered answers.

Metadata - About the Q&A

One of the shortcomings of traditional card or even local computer files of reference knowledge is the lack of metadata, information about the knowledge that can be used to retrieve it. In the absence of well-defined, rich metadata, such knowledge collections cannot scale to large size. Without a large scale of content, the value of any such individual collection is limited.

We therefore address an innovative variety of metadata in the Knowledge Bit format. If we are to capture any information that may flow across a virtual or physical library reference desk and are to add our knowledge and organize it for future use, we must create an exceptionally wide, high, and deep collection of rich content.

Questions and Answers: Capture, Identification, and Taxonomy

Questions

The first step in managing questions is to recognize the classic reference complaint that "the patron never asks the right question." KBIT captures significant content about the question once it has been clarified.

The KBIT format recognizes three types of questions:

- The original (patron) question or query
- Reference-interview process questions, aimed at eliciting the question
- The formal question, or the question to be answered

We want to capture the original question, because it may provide words or phrases that can be used later to link patrons' language or terminology to that used in our retrieval schemes.

KBIT also provides for identification of the question by two other classes:

- The purpose of the question for the specific patron
- The type of question being asked

This is done partly to provide context in the initial research to answer the question, and also to provide further guidance and understanding about the resulting question-answer combination.

Finally, a set of descriptive fields allow for identification of question characteristics in order to manage question content within the resultant database:

- Geographic origin
- Language of question
- Copyright status
- Availability status

In addition, depending on the application, it is possible to include all the "knowledge" information – classification, evaluation, and statistical analyses – to questions as well as to the answers with which they will normally be associated. These include:

1. Topical classifications
2. Key terms, classified but uncontrolled
3. Facets or aspects
4. Item, author, and source evaluations
5. Frequency and relationship statistics

The use of these tools is discussed below primarily with regard to answer content.

Answers

Answers, the core content of any KBIT-based database or service, have a potentially more complex structure. Of course, the answer record captures the content selected as the response to the reference question. There is also the taxonomy of the answer to be identified. The form of the answer is classified for later use in selection:

- Brief answer—sufficient but to the point
- Summary statement—perhaps from a longer answer
- Expanded answer—probably based on those above
- Comprehensive answer—extended answer
- Multimedia answer or partial answer related to the above

These forms illustrate an important principle: a single question may have many answers that differ in length and other characteristics (e.g., intended audience). Answers can also differ in the type of response provided, depending on their purpose and the information available:

- Fact—the most self-contained and complete response
- Direct answer—attempts to answer the question within itself
- Citation—points to an answer (e.g., "look in...")

- Guide—any form of pathfinder or tutorial; this response may teach the process of finding an answer as well.
- Referral—may lead to an answer, but does so only by pointing to a possible source.

By organizing answers into these categories, we learn what type of content the reference librarian intended to provide, and we can provide the appropriate type of answer to future requestors. The source of the answer is captured, either in standard bibliographic format or with URL or other Web identification methods. Other parameters of language, source, and intellectual property status and availability are also included, as with the question records.

Topical access options and the evaluative data are of great importance for location of specific answers in large compilations of answer data, such as AnswerBase. It is important to recognize the context in which an answer is provided. Therefore the "knowledge bit" needs to carry better search and other metadata, since the item itself is relatively spare (but precise) in information content.

Multi-Classification As a Strategy: How Do You Shelve a Digital Item?

Classification provides the highest level of organization in an electronic environment, for unlike subject access, a class scheme provides orderly navigation among broader, narrower, and related topics. The KBIT format provides for assignment of multiple classification terms from multiple classification schemes for a single answer record. This approach is not feasible for shelf-based library systems where classification is used as the basis of shelving. Although MARC does provide for multiple assignments, they are rarely created because the book must be shelved in one place only. The Anglo-American focus on classification as a process entirely linked to shelf arrangement has similarly prevented the use of multiple class schemes as topical access tools.

KBIT answers will not be placed on a library bookshelf, so we are free of these restrictions. The KBIT format allows for:

1. Selection of a desired classification scheme
2. Input of a selected term from that scheme
3. Repetition of this process for a given item (answer)

This provides considerable flexibility in application. Individual applications will provide different lists of class schemes or thesauri supported, different degrees of automation in providing reference to and input of these structured databases, and different levels of support for individual groups to create and support local schemes.

In addition to use of primary terms provided in classification schemes, the KBIT format allows for extended input of controlled and uncontrolled cross-references tied to the classification scheme(s) employed. For each classification term selected for an item, the following choices for related terms may be provided on an optional basis:

Class/Thesaurus Links	Controlled Links	Uncontrolled Links
Broader Term	Within Scheme	Local Option
Narrower Term	Within Scheme	Local Option
Related Term	Within Scheme	Local Option
Don't Use	Local Option	Local Option
Use Instead	Local Option	Local Option

This capability allows for the management of local choice, for the input of local terms, and for user-level modification of specific KBIT content, while retaining the critical intellectual structure and coherence of the classification schemes. This approach also allows for the use of Web-based hyperlinks as a specific case of navigation links.

The flexibility of the structure will allow interoperability of any specific or local scheme so long as it is related to a recognized classification or thesaurus scheme.

Quality Evaluation As a Principle: Preserving Reference Expertise

Bibliographic records typically have not included evaluative or quality ranking content; MARC treats all books equally. However, libraries and reference librarians make quality and value judgments every day in collection development and recommendations. The KBIT format enables this process to be captured and quantified for use in making automated recommendations to patrons directly from the database. It is particularly important to capture these evaluations because KBIT answers will often be provided without the traditional quality context to which readers are accustomed: the publisher's logo, the book jacket biography of the author, the presence on the library's shelves.

The KBIT format includes four levels of quality evaluation for sources of information provided as answers: the item itself, the work from which the answer was taken, the author of the work, and the publisher of the work. For instance, the content of the item can be ranked on a scale of 1 to 10 (1 is highest) relative to:

- Quality—overall quality of the content provided
- Assurance—confidence in the answer's content
- Accuracy—precision and detailed accuracy of the answer
- Audience—intended audience for the content
- Width—focus of the content provided
- Breadth—comprehensiveness of the content
- Height—complexity or depth of the content

While highly arbitrary and subjective, KBIT format users will be able to develop quantitative ranking and rating schemes for content based on compilation of evaluations from the original library reference selectors, subsequent publication editors, and readers. A similar evaluation of works can be provided, depending on specific applications.

For authors, a separate KBIT evaluation is available, which will allow quality ratings to be applied across the scope of an author's works. The evaluation categories are:

- Qualifications—accreditation, certifications for topics discussed
- Clarity—rating of presentation, style, language
- Bias—existence of any visible unstated perspective

Evaluations can be applied to individual answers or works, and cumulated on the applications level to provide an overall assessment of individual authors.

Finally, well-established library criteria and evaluations can also be captured for publishers in KBIT to allow support in the review of unknown works from known sources. Quality criteria categories here include:

- Quality—overall quality of the content provided
- Assurance—confidence in the answer's content
- Accuracy—precision and detailed accuracy of the answer
- Audience—intended audience for the content
- Value—relationship between cost and content

Facets for Flexibility: Content Analysis for Digital Retrieval

In addition to the use of the structured or controlled classification and thesaurus schemes, the KBIT format design recognizes the uniquely broad nature of its corpus by providing two additional search-oriented fields: a KeyAccess classification of otherwise uncontrolled vocabulary, and a faceted classification scheme structure.

KeyAccess fields could be used in various applications in a wide variety of ways. The intent is to provide a quick and easy input of key terms that will aid in identifying an answer to a future question. The challenge is to do this without restraining the input to authorized lists or authority files at the time of input. (This differs from applications that subject this content to authority processing, thereby increasing quality and consistency.)

KBIT currently provides for KeyAccess fields in six categories:

1. Company—names of corporations, divisions, etc. (as used in query or answer)
2. Person—personal names, nicknames, etc. (used in absence of name authority)
3. Place—location names (not captured in a geographic facet)
4. Product—brand and common names for products (could select desired product from a list)
5. Phrase—linked multiword terms describing answer or object (for instance, can serve as a "title" for an image)
6. Words—key search terms not otherwise classified above

The intent of providing these tagged fields is to "highlight" content for retrieval that otherwise could be lost in a full text search of answer content. These fields also serve as "candidate" terms for applications that operate authority control facilities.

The KBIT format also provides for the classic six facets or elements of a bit of content:

- Who—any classified list of names, authority or "as-used"
- Where—any geographic classification
- When—any temporal classification (centuries, decades, weeks, etc.)
- Why—classification for "explanation" answers
- What—answers that provide description, definitions
- Which—answers that provide recommendations
- How—answers that explain functionality

Tagging content with these facets will allow retrieval of answers limited to those components or aspects. Multiple assignments may be made, or application programs may create separate records where multiple aspects exist.

Advanced Retrieval Opportunities: Beyond OPACs and Web Search Engines

In developing the KnowBit knowledge format, AnswerBase has drawn on past experiences in bibliographic and information retrieval, with the understanding of new techniques, processes, and economic means of processing. This has led to thoughts of new retrieval processes that can deliver better answers to individual patrons. The following terms represent some areas of interest at AnswerBase as illustrations of the potential power of the KnowBit knowledge format.

Classification Browsing—Librarians know that massive amounts of knowledge are buried in the traditional classification schemes and thesauri, but traditional systems have done little in this area. KnowBit stresses classification as the appropriate form of structured knowledge for large amounts of content to be used in a Web-based environment. The most advanced research in this area is being performed by Dr. Michael Buckland at the University of California (http://www.sims.berkeley.edu/research/oasis/).

Dynamic Relationships—The KBIT focus is different than that of the traditional bibliographic record and the work it describes. A question may have many answers, depending on the focus and purpose of the response. One answer may be the right response to many questions. While the KBIT format allows for identification of the initial relationship between a question and its answer, in practice applications will be able to recognize many statistical and behavioral patterns, thereby guiding searches.

Feedback Systems—While the use of information feedback is used in some Web retrieval systems (e.g., "find more like this"), it is not a common approach in professional information applications such as library catalogs. Development of proactive feedback services is particularly appropriate to the discrete "knowledge bits" of KBIT.

Personalization—Made popular in the Web world by Amazon.com, personalized service is more a concept than a reality in most information retrieval applications. Development in the library environment may be slowed by libraries' traditional protection of personal privacy, but Web-based services will not hesitate if it results in gaining a competitive edge.

Search Guidance—Since answers are one form of guidance, and guides (such as pathfinders or bibliographies) are one form of answer, any KBIT application is well positioned to provide users with proactive search guidance well beyond that found in standard indices or catalogs. AnswerBase plans to include search guides internally and to provide links as guides to external "answers" including information vendors and expert research agencies.

Since few operating retrieval systems exist that can provide these processes to a KBIT database structure, the argument for development of a standard is strong.

Why not MARC or XML? The Need for a New Knowledge Format

The scope of library reference in terms of a digital database is somewhat staggering. The reference librarian may need to identify the most specific fact, a mere data point, or content from any work in any library. At the same time, the entire scope of the Web is a potential, if unorganized, hunting ground. The mere combination of these two kinds of knowledge resources in a single database requires an approach not satisfied by use of any existing knowledge scheme.

MARC was, after all, created to identify books, although the design anticipated other media and publishing forms. It can be extended to include periodical indexing with difficulty, although it has been applied to reports, maps, and more published resources than any other such standard. XML is being developed to bring some order to Web sites; it is ignorant of any data, digital or analog, not in Web form. The efforts to insert Web links inside MARC (the 856 field) and to provide XML forms for MARC content only highlight the media-dependent nature of their origins.

More importantly, while MARC provides a descriptor to a work (historically, a physical object), XML and Web-based tools must wrestle with location and delivery of a highly ephemeral digital resource. In print and online, we face the desire for information in smaller and more discrete packages than the traditional: chapters or paragraphs rather than books, and journal articles or extracts rather than issues.

Web services have reluctantly turned to the intellectual organization of content in view of the demonstrated failure of raw computer-based "searching." It thus seems important to use the great organization schemes of libraries and professional societies: not only the Library of Congress' Classification and Subject Headings schemes, but also those of MEDLINE and others. And for the great library-based classification schemes, the digital collection offers the heady option of multiple classifications for a single item, creating numerous virtual shelving schemes.

Recognizing these general trends, the effort to provide a truly comprehensive scheme for capturing bits of information tied to reference transactions became compelling to AnswerBase and to a number of research libraries in 1999. The result is the Knowledge Bit format discussed in this paper. The nomenclature is from two guiding elements of the design: it should be capable of dealing with discrete bits of information as provided in a reference transaction, and it should embody librarians' knowledge, not just the information, in the form of selection and evaluation of the source information.

Incidentally, AnswerBase's KnowBit content will be mapped into both MARC and XML for use in systems employing those schemes.

Toward a Reference Standard: A Joint Publisher and Library Initiative

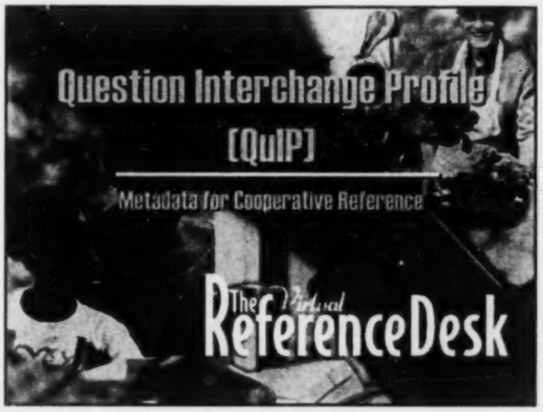
AnswerBase Corporation, as a new Web-based publisher, is acutely aware of the amount of content that users accept as answers to questions. As librarians and information professionals, we believe quality content at the "answer" level will not become widely available until it is possible to describe, evaluate, and characterize content in ways such as are made possible by the KnowBit structure.

Therefore we plan to submit the Knowledge Bit format, as defined by the company, the libraries involved in its definition, and our development partners, to the National Information Standards Organization for review as a standard for capture of reference content. We are assembling a group of library reference, management, and technical committee members to work with us and other publishers and rightsholders. (For more information, contact the author at www.answerbase.net.)

The QuIP Standard

Question Interchange Profile (QuIP), developed by R. David Lankes of the Virtual Reference Desk Project, is a threaded data format that relies on metadata to maintain, track, and store questions and answers in a consistent file format http://www.vrd.org/Tech/QuIP/1.01/1.01d.htm). AnswerBase believes that QuIP could blend well with KBIT.

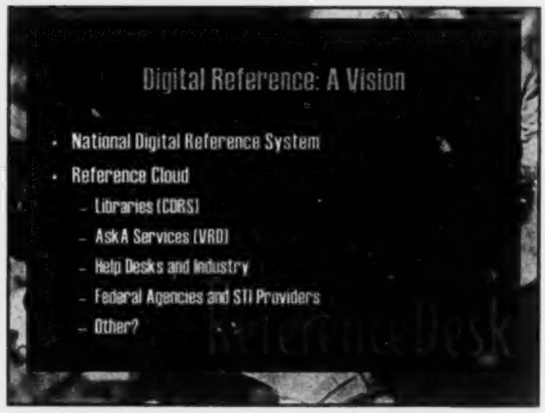
Note: Since the presentation of this paper, a formal submission for development of a Digital Rights Management (DRM) standard has been forwarded to the National Information Systems Organization.



Question Interchange Profile [QuIP]

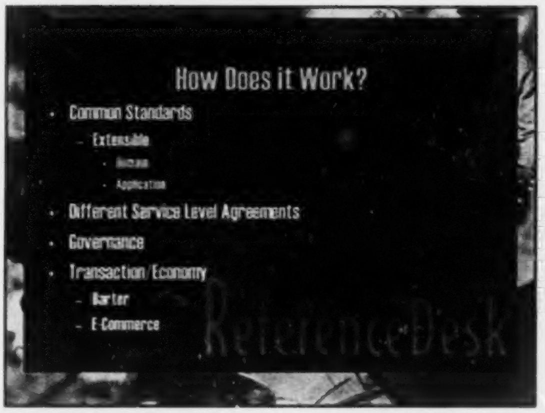
Metadata for Cooperative Reference

The Virtual ReferenceDesk



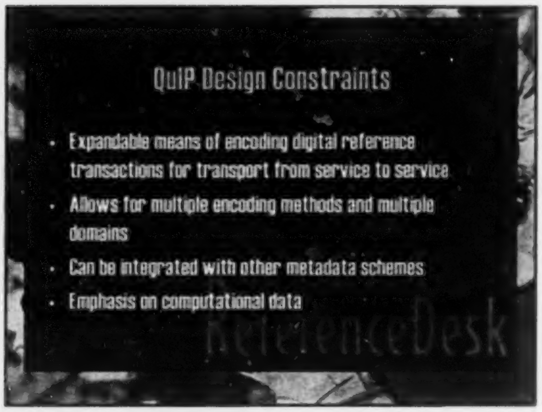
Digital Reference: A Vision

- National Digital Reference System
- Reference Cloud
  - Libraries (CDRS)
  - AskA Services (VRD)
  - Help Desks and Industry
  - Federal Agencies and STI Providers
  - Other?



How Does it Work?

- Common Standards
  - Extensible
    - Domain
    - Application
- Different Service Level Agreements
- Governance
- Transaction/Economy
  - Barter
  - E-Commerce



QuIP Design Constraints

- Expandable means of encoding digital reference transactions for transport from service to service
- Allows for multiple encoding methods and multiple domains
- Can be integrated with other metadata schemes
- Emphasis on computational data

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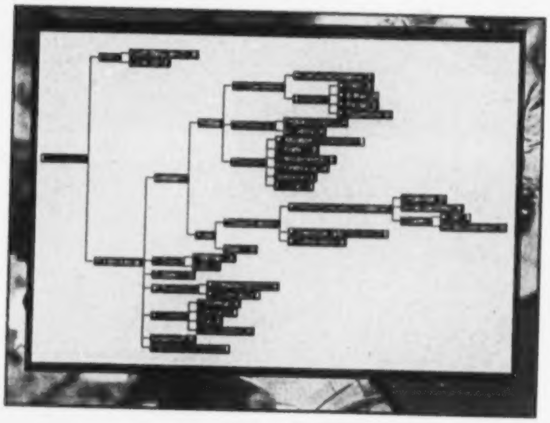

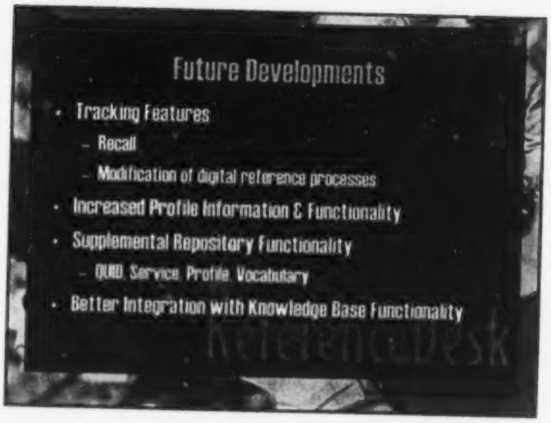

Future Developments

- Tracking Features
  - Recall
  - Modification of digital reference processes
- Increased Profile Information & Functionality
- Supplemental Repository Functionality
  - QUIP, Service, Profile, Vocabulary
- Better Integration with Knowledge Base Functionality

Questions?

WWW.VRD.ORG/Tech/QuIP/

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Ask-An-Expert Services: Analysis Proposal

Principle Investigator: Joseph Janes
Research Assistants: Chrystie Hill & Alex Rolfe

Presentation

Introduction

This study seeks to analyze ask-an-expert services on the Internet. These services accept questions asked of experts in specific disciplines, professions or specialties and can be offered or developed by organizations other than public, academic or special libraries. Particularly, these services will be assessed for accuracy, turnaround time, service orientation, their own evaluations, the nature of their responses and their response to out-of-scope questions. This study will also gather information on the services' stated policies on professional advice, homework questions; limitations of service, evaluations and frequently asked questions.

The purpose of this study is to determine the nature and quality of responses to user questions from Internet services developed and staffed by subject experts. With further research, assessments of ask-an-expert services can be compared with digital reference services currently offered by librarians on the Internet.

Methods

Users: Researchers will ask questions based on pre-determined criteria in each of the subject categories from pseudonymous hotmail accounts. Three questions will be asked of each of the non-commercial expert site, and each of these questions will be asked of the commercial sites.

Service Sample: Ask-an-expert services fall generally into two categories. The first contains those services that are provided by altruistic organizations or individuals who are interested in digital reference (but are not necessarily librarians). These experts are volunteers from a huge range of disciplines and professions. The characteristics of these services vary. [The Virtual Reference Desk's AskA+ Locator (http://vrd.org/locator/subject.shtml) contains a collection of over 80 ask-an-expert services that answer questions from the K-12 education community and others.] Also present within this category are individual sites where a person (sometimes with no professional affiliation whatever) deems him/herself an expert, creates a Web site and answers questions from the public. The other category contains commercial sites run by for-profit organizations. Their "about us" pages introduce investors, board members and CEOs. These Web sites frequently contain advertising. Samples will be drawn from each of these two types of ask-an-expert sites. Ten non-commercial sites and ten commercial sites will be evaluated.

Questions: Questions fall into three categories: fact, source, and out-of-scope. For the most part, they will be gleaned from the IPL archives in order to maintain authenticity in the research. These are real reference questions that have been previously asked by patrons in a digital environment.

Evaluation: Evaluation will include information on the sites and services and their individual answers to the questions we submitted.

Evaluation of the sites will primarily characterize the site's functionality. Researchers plan to answer the following questions:

- How much time is taken to submit questions?
- How are questions submitted?
- What kinds of things are required of users in order to submit questions (e.g., e-mail address, login name, etc.)?
- Must subject areas be identified to answer?
- Are there FAQs?
- What are their policies, if any are stated?
-

Evaluation of the answers will include the following:

- How much time is taken for a user to receive an answer?
- Was further information requested?
- How long was the answer?
- What kind of information did the answer contain (e.g., sources, referrals, factual answers, etc.)?
- Did the expert answer the question asked?
- Is the answer verifiable?

Prepared by Chrystie Hill
Last updated 15 June 2000

Ask the Experts

Alex Rolfe
Chrystie Hill

Our Perspective

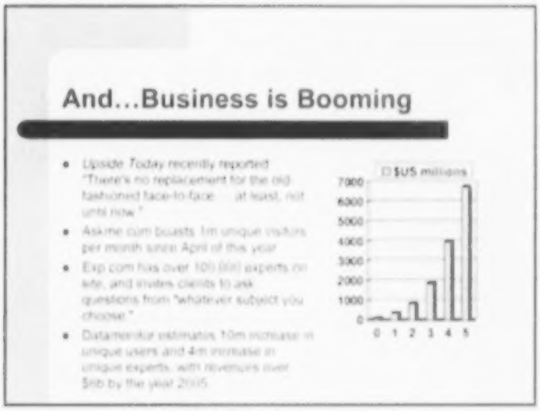
- Students
  - Research conducted under the direction of Joseph Janes, with support from the Library of Congress and University of Washington (UW)
- Reference Librarians
  - Interested in the reference exchange in variety of environments.
- Researchers
  - Interested in the range and scope of information services, their characteristics and value

Current Reference Practice

- The WWW has transformed reference from "in person" correspondence to the exchange of information in digital environments
- While digital reference is practiced by most academic and some public libraries, many digital reference services are initiated by commercial or educational organizations
- These kinds of services are referred to as "expert sites," "knowledge networks," "information exchanges" or "AskA services."

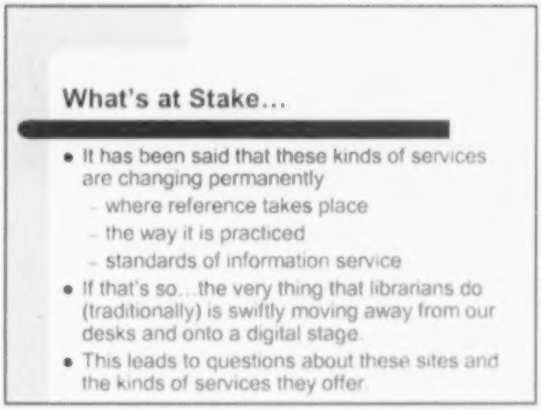
What Is an Expert Service?

- A commercial or organizational service that offers free or fee-based "expert" answers to your questions in one or several subject areas.
- Depends on the following notions:
  - the Web is not easy to search
  - people want and should be able to ask questions of real people in the digital environment



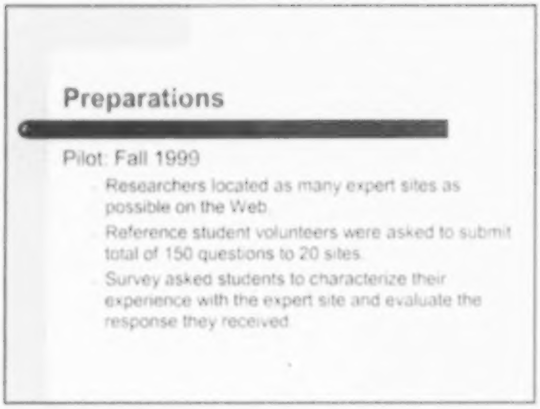
And...Business is Booming

- *Upside Today* recently reported: "There's no replacement for the old-fashioned face-to-face ... at least, not until now."
- Askme.com boasts 1m unique visitors per month since April of this year
- Exp.com has over 100,000 experts on site, and invites clients to ask questions from "whatever subject you choose."
- Datamonitor estimates 10m increase in unique users and 4m increase in unique experts, with revenues over $6b by the year 2005



What's at Stake...

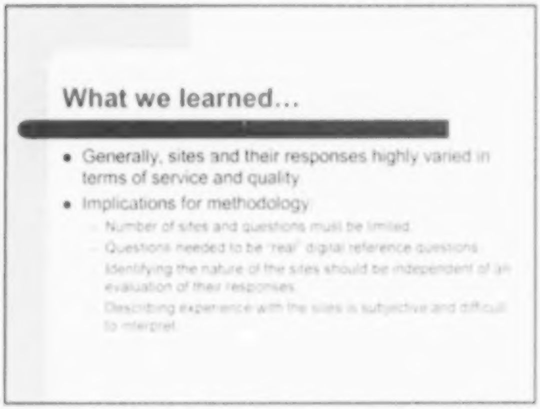
- It has been said that these kinds of services are changing permanently
  - where reference takes place
  - the way it is practiced
  - standards of information service
- If that's so...the very thing that librarians do (traditionally) is swiftly moving away from our desks and onto a digital stage.
- This leads to questions about these sites and the kinds of services they offer.



Preparations

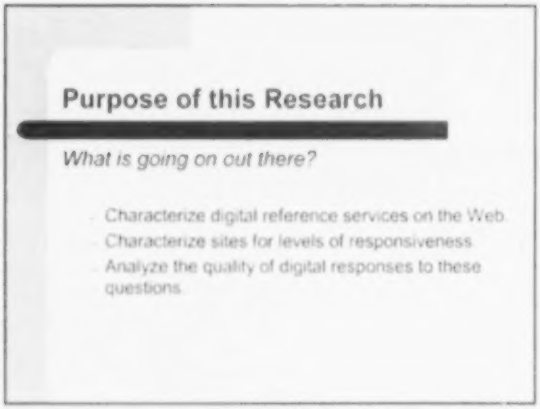
Pilot: Fall 1999

- Researchers located as many expert sites as possible on the Web.
- Reference student volunteers were asked to submit total of 150 questions to 20 sites.
- Survey asked students to characterize their experience with the expert site and evaluate the response they received.



What we learned...

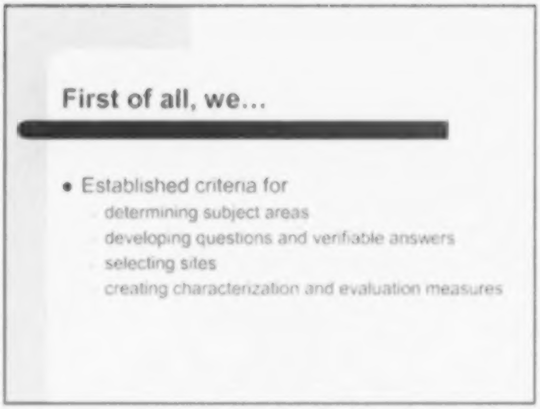
- Generally, sites and their responses highly varied in terms of service and quality
- Implications for methodology:
  - Number of sites and questions must be limited.
  - Questions needed to be "real" digital reference questions.
  - Identifying the nature of the sites should be independent of an evaluation of their responses.
  - Describing experience with the sites is subjective and difficult to interpret.



Purpose of this Research

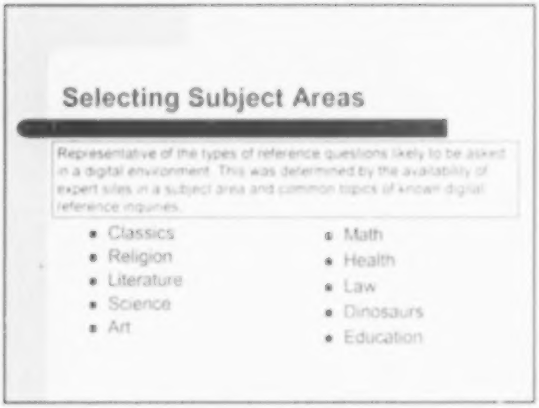
What is going on out there?

- Characterize digital reference services on the Web
- Characterize sites for levels of responsiveness
- Analyze the quality of digital responses to these questions



First of all, we...

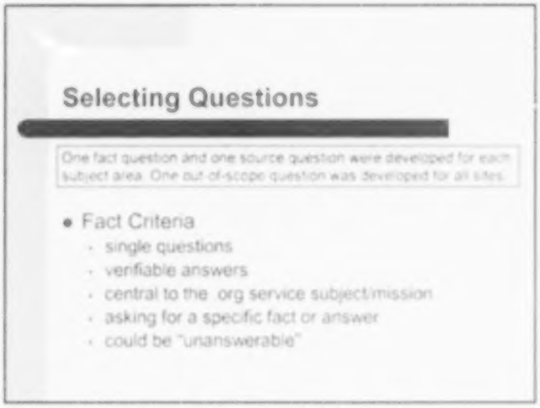
- Established criteria for
  - determining subject areas
  - developing questions and verifiable answers
  - selecting sites
  - creating characterization and evaluation measures



Selecting Subject Areas

Representative of the types of reference questions likely to be asked in a digital environment. This was determined by the availability of expert sites in a subject area and common topics of known digital reference inquiries.

- Classics
- Religion
- Literature
- Science
- Art
- Math
- Health
- Law
- Dinosaurs
- Education



Selecting Questions

One fact question and one source question were developed for each subject area. One out-of-scope question was developed for all sites.

- Fact Criteria
  - single questions
  - verifiable answers
  - central to the .org service subject/mission
  - asking for a specific fact or answer
  - could be "unanswerable"

Selecting Questions

- Source Criteria
  - central to a .org service subject/mission
  - asks for help, guidance, sources (explicitly), not a specific fact or answer
  - background may be included
- Out-of-Scope
  - appropriate for any kind of subject/site

Sample Questions

- Shakespeare/Fact
  - "Which play of Shakespeare's has the moving call to battle that refers to 'heroes of crispin day'? Thanks for your help."
- Health/Source
  - "Can you help me find information about various doctors? I would like to know where they received their degrees, and any other information. I live in Florida, but also want information about Alabama doctors as well. Thank you."
- Out-of-Scope
  - "What is the meaning of life?"

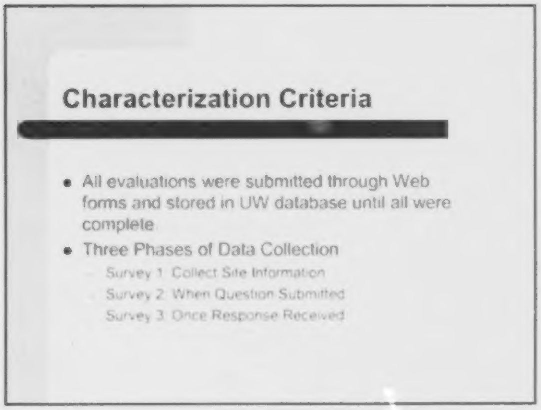
Selecting Sites

Selection of an equal number of both commercial and non-commercial sites for the purposes of evaluating these services separately, and possibly comparing their results.

- Commercial Sites
  - Multiple page sites with multitude of experts answering questions from self-identified categories
  - Diverse subject areas, can even declare your own
- Non-commercial Sites
  - Smaller sites, limited personnel field and answer questions
  - Subject specific

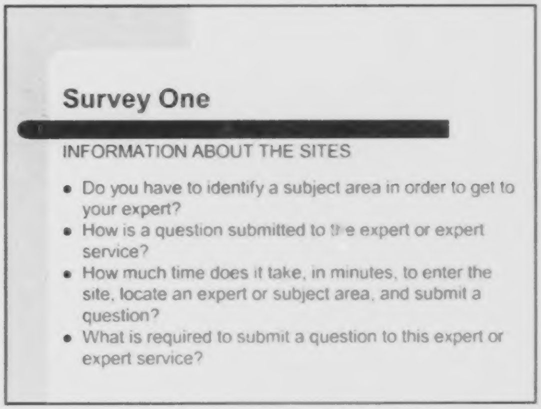
Naming Names

- 10 Commercial Sites
  - About
  - Abuzz
  - AllExperts
  - Answer Point @ Ask.com
  - AskanExpert
  - Askme
  - Exp
  - ExpertCentral
  - Frenzi
  - Knowpost
- Non-commercial Sites
  - The Oracle
  - Bill Nye
  - Shakespeare Homework Help
  - Dr. Universe
  - Joan of Art
  - Go Ask Alice
  - C-span
  - Dr. Math
  - Dino Russ
  - AskERIC



Characterization Criteria

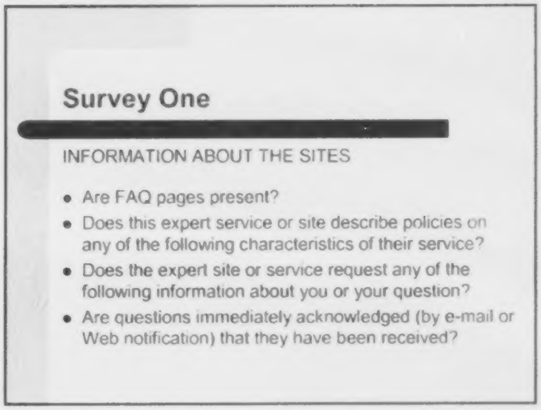
- All evaluations were submitted through Web forms and stored in UW database until all were complete
- Three Phases of Data Collection
  - Survey 1: Collect Site Information
  - Survey 2: When Question Submitted
  - Survey 3: Once Response Received



Survey One

INFORMATION ABOUT THE SITES

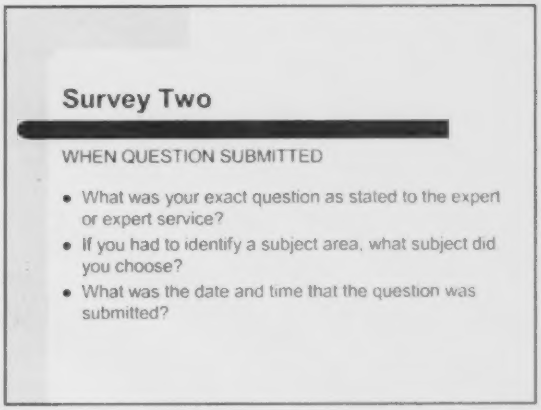
- Do you have to identify a subject area in order to get to your expert?
- How is a question submitted to the expert or expert service?
- How much time does it take, in minutes, to enter the site, locate an expert or subject area, and submit a question?
- What is required to submit a question to this expert or expert service?



Survey One

INFORMATION ABOUT THE SITES

- Are FAQ pages present?
- Does this expert service or site describe policies on any of the following characteristics of their service?
- Does the expert site or service request any of the following information about you or your question?
- Are questions immediately acknowledged (by e-mail or Web notification) that they have been received?



Survey Two

WHEN QUESTION SUBMITTED

- What was your exact question as stated to the expert or expert service?
- If you had to identify a subject area, what subject did you choose?
- What was the date and time that the question was submitted?

Survey Three

RESPONSE RECEIVED

- Date/time response was posted
- Did the service or expert request further information?
- Exact response of the expert or expert site
- Word count
- Is the response to this question confined to a short factual answer?
- Can the response be characterized as detailed?

Survey Three

RESPONSE RECEIVED

- Components of the response
- Did the expert answer the question asked?
- If the question solicited only a factual answer, was the response to this question correct?
- Considering your experience with this site AND this expert, would you use this service again?
- On a scale of one to five, rate this response for helpfulness.
- Was there anything lacking in the response to this question?

Next, we...

- Established willing participants among the sites we had chosen; 0 sites declined participation.
- Determined pseudonyms from which to ask questions, including establishing digital identity with free e-mail accounts and/or login names and passwords.

And *then* we...

- Developed guidelines for asking questions, including a timeline by which questions would be asked and responses would be received.
- Completed submission of all questions within 3 weeks.
- Each submission was given at least 2 weeks response time.

The Whole Thing Looks Like This...

Commercial Sites

Non-commercial Sites

Total Commercial Site Questions

Total Non-commercial Site Questions

Total Questions

The Goods

- Findings are preliminary and not yet exhaustive
- What we can show you today…
    - Site Characteristics
    - Response Rates
        - Overall
        - Sites
    - Analysis of Responses
        - Overall
        - Sites
        - Question Types

Site Characteristics

- Time to enter site and ask question
    - Overall 4.75m
    - Com 5.4m
    - Non-com 4.1m
- Method of submitting question

	Average	Com	Non-com
Web Form	60	60	60
Bulletin	15	30	0
E-mail	25	10	40

Site Characteristics

- FAQs

	Average	Com	Non-com
Yes	30	20	40
No	70	80	60

1 commercial site and 3 non-commercial sites requested that the user look at FAQs before asking their question.

Site Characteristics

- Policies:

	Average	Com	Non-com
Qs not answered	20	10	30
Turnaround time	35	10	60
Information to include	15	0	30
Homework Advice	20	10	30
Limitations	35	10	60

Response Rates

OVERALL

- Received 267 responses to 168 questions of 240 asked

	Average	Com	Non-com
Fact	75.5	77	60
Source	67.3	70	40
Scope	55	70	40
Totals	70	73.3	46.7

Response Rates

BY SITE

- removed out-of-scope questions
- non-commercial sites combined

Response Rates by Site

RANK	CODE	RATE
1	B	20/20
2	I	19/20
3	F	18/20
4	E	16/20
5	C	15/20
5	G	15/20
7	H	14/20
7	A	14/20
9	ORGS	11/20
10	J	9/20
11	D	7/20

Response Analysis

- Only 12 of the 267 responses asked for more information.
- Answers ranged from 1 word to 1,397 words in length. The median word count was 29.
- 69% of the time we indicated that something was lacking in the response

Response Analysis

OVERALL

- 51% of responses answered the question asked; another 17% were considered to maybe answer the question.
- The median response time was 3 hours and 3 minutes.
- 48% of the time we indicated we would use the service and expert again; another 21% we indicated maybe

Response Analysis

BY SITE

- excludes out-of-scope questions
- collapses non-commercial sites
- nine measures

Site Rankings

Requested Additional Information			Responses per Question		
Rank	Code	Rate	Rank	Code	Number
1	H	20.0	1	B	7.35
2	D	14.3	2	J	1.89
3	A	6.7	3	G	1.73
3	C	6.7	4	E	1.50
4	B	4.1	5	I	1.32
5	I	4.0	6	F	1.11
5	F	4.0	7	A	1.07
7	G	3.8	7	H	1.07
8	E	0	9	D	1.00
8	J	0	9	C	1.00
8	ORGS	0	9	ORGS	1.00

Site Rankings – Response Time

RANK	CODE	MEDIAN
1	C	1.2 h
2	A	3.3 h
3	I	4.0 h
4	B	6.8 h
5	D	8.5 h
6	F	13.9 h
7	E	16.4 h
8	ORGS	1 day, 4.5 h
9	H	1 day, 18 h
10	G	5 days, 1.4 h
11	J	6 days

Site Rankings – Word Count

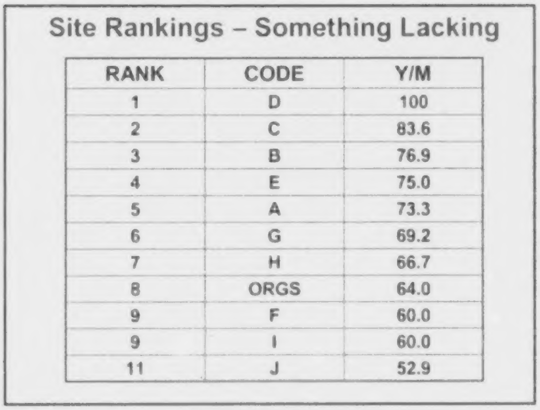
RANK	CODE	MEDIAN
1	H	105
2	ORGS	81
3	F	71
4	C	55
5	I	54
6	J	41
7	D	33
8	G	32
9	A	28
10	B	27
11	E	23

Site Rankings – Answer Included

RANK	CODE	RATE
1	ORGS	.25
2	A	.23
3	I	.19
4	J	.18
5	C	.17
5	H	.17
7	D	.14
8	B	.13
9	G	.12
10	E	.11
11	F	.08

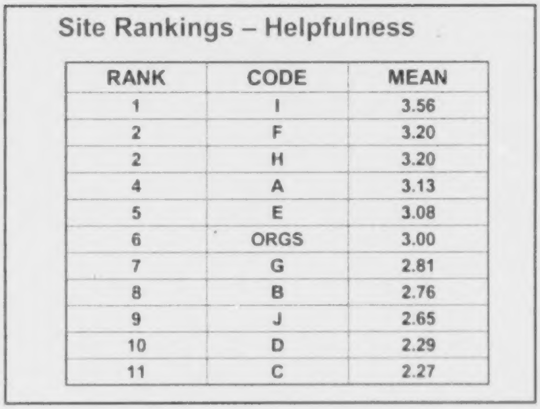
Site Rankings – Answered Q Asked

RANK	CODE	Y/M
1	I	92.0
2	E	91.7
3	ORGS	90.9
4	F	70.0
5	G	69.3
6	B	61.8
7	A	60.0
8	J	58.8
9	H	53.4
10	C	46.7
11	D	42.9



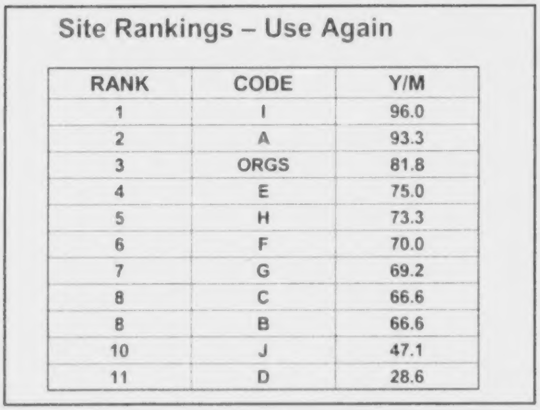
Site Rankings – Something Lacking

RANK	CODE	Y/M
1	D	100
2	C	83.6
3	B	76.9
4	E	75.0
5	A	73.3
6	G	69.2
7	H	66.7
8	ORGS	64.0
9	F	60.0
9	I	60.0
11	J	52.9



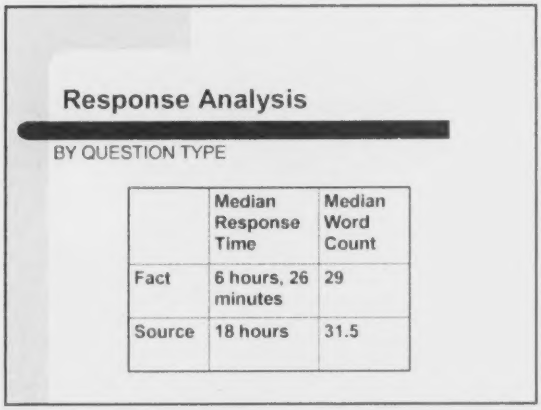
Site Rankings – Helpfulness

RANK	CODE	MEAN
1	I	3.56
2	F	3.20
2	H	3.20
4	A	3.13
5	E	3.08
6	ORGS	3.00
7	G	2.81
8	B	2.76
9	J	2.65
10	D	2.29
11	C	2.27



Site Rankings – Use Again

RANK	CODE	Y/M
1	I	96.0
2	A	93.3
3	ORGS	81.8
4	E	75.0
5	H	73.3
6	F	70.0
7	G	69.2
8	C	66.6
8	B	66.6
10	J	47.1
11	D	28.6

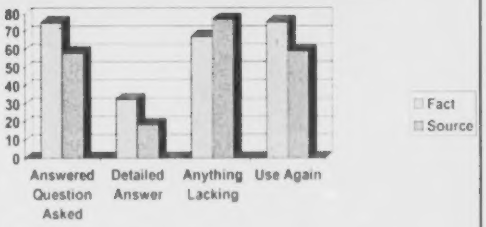


Response Analysis

BY QUESTION TYPE

	Median Response Time	Median Word Count
Fact	6 hours, 26 minutes	29
Source	18 hours	31.5

Fact vs. Source



Was the Answer Verifiable?

FACT QUESTIONS ONLY

Yes	50.4%
Maybe	18.7%
No	30.9%

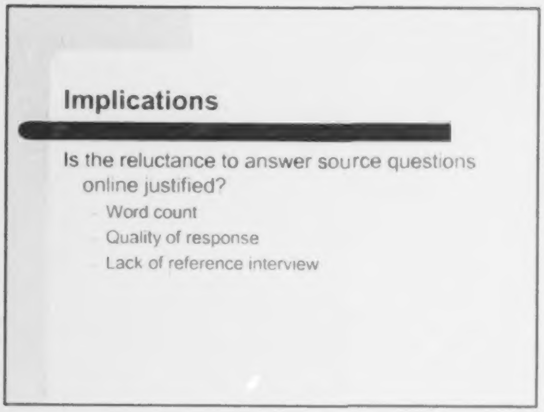
Response Analysis

BY SUBJECT

- Barely begun
- Education, Art, and Health received the fewest responses.

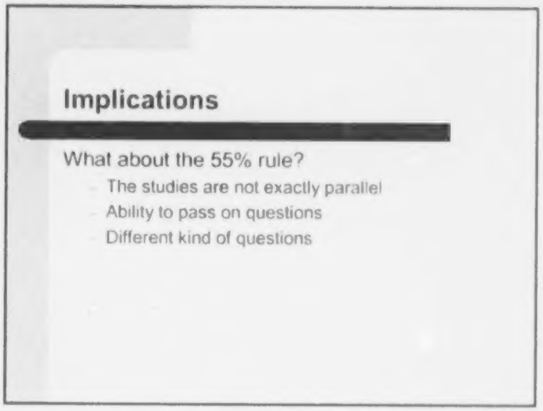
Conclusions

- Generally, not so bad
  - response rate at 70%
  - serious answers
  - over 50% verifiable
- Subjective Measures
  - researchers would use again even though answers almost always lacking



Implications

- Is the reluctance to answer source questions online justified?
  - Word count
  - Quality of response
  - Lack of reference interview



Implications

- What about the 55% rule?
  - The studies are not exactly parallel
  - Ability to pass on questions
  - Different kind of questions

Encouraging Online Questioners to Question Their Questions

Tim Steury
Director, *Ask Dr. Universe,* Washington State University

Ask Dr. Universe, a question and answer Web site (www.wsu.edu/DrUniverse) sponsored by Washington State University, has reached an impasse. Traffic to the site has become so heavy that it has become impossible to answer all the questions. This has presented a quandary in that further promotion and development of the site is impossible without drawing even more questions that will go unanswered.

In response, we are re-focusing the site. First, we are developing reference links to re-direct the purely informational questions and routine homework questions. We are also more pointedly challenging users of the service to consult with their local librarians. This screening process will address approximately half the questions received daily. The rest are more problematic, as they are still far more than we can possibly answer. And they are not easily or routinely answered.

Our approach to these questions will be to answer the best ones—meaning the most thoughtful and original. This is not as callous, or elitist, as it first sounds. We are developing a transparent online tutorial to encourage our questioners to consider their questions more carefully. In other words, we are looking at the "good question" as the most important part of critical thinking and the learning process, because it helps the questioner formulate thought-provoking ideas of his or her own.

Oddly, this idea has seldom been addressed systematically by educators. Despite a revered tradition of excellent teachers/questioners, starting with Socrates, the *Ask Dr. Universe* team has not been able to find extensive pedagogical material that focuses on the question.

We have begun weekly discussions among a group of scientists, philosophers, librarians, and other types addressing the question, "What is a good question?" Already the discussion has been lively and the perspectives varied.

What we hope emerges is not only a broad categorization of the Question, but also a qualitative and probably somewhat subjective analysis of the Question. We plan on our philosophers keeping us honest. Already, what the theoretical physicist in our group considers a "good question" is different from what the educational theorist calls a "good question." Already, the criteria range from the epistemological to the aesthetic.

At the end of our discussions, we will attempt to incorporate our collective analysis into an engaging challenge that will meet each questioner who visits our site. We aim to synthesize criteria that will reveal commonalities between a question asked by an inquisitive five-year-old and one asked by a creative scientist. To further encourage our readers to question their questions, we will have a "best question of the week" contest. The winner will receive a new dictionary or Dr. Universe T-shirt or other suitable prize. But most important, Dr. Universe will explain WHY that question was picked as the best.

Of course the best questions will be answered, often in our widely distributed newspaper column.

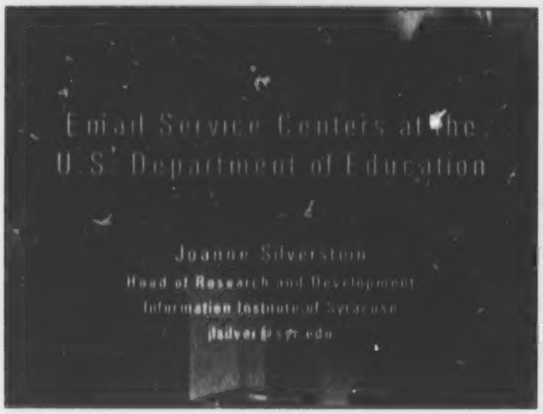
E-mail Service Centers at the U.S. Department of Education: A Study

Joanne Silverstein
Information Institute of Syracuse

Presentation

Introduction

For several years, the United States Department of Education has offered digital reference services that are well established and committed to customer service. Last year, the department conducted a major research initiative to optimize those services. This presentation discusses the research methods and results.



Email Service Centers at the U.S. Department of Education

Joanne Silverstein
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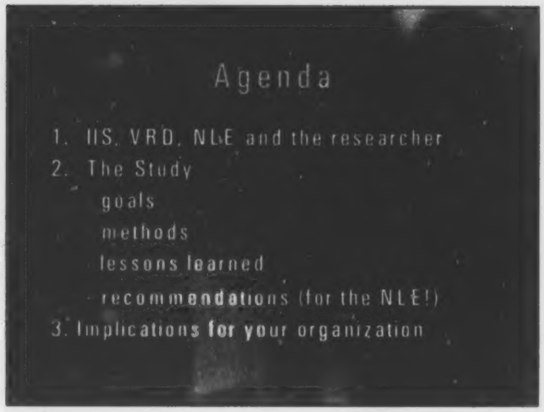
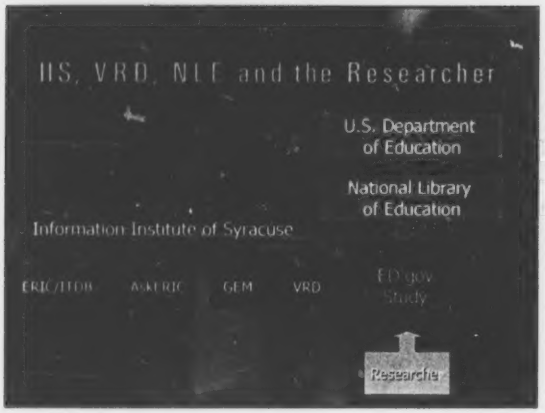
Information Institute of Syracuse
jsilver@syr.edu



Agenda

1. IIS, VRD, NLE and the researcher
2. The Study
   - goals
   - methods
   - lessons learned
   - recommendations (for the NLE!)
3. Implications for your organization



IIS, VRD, NLE and the Researcher

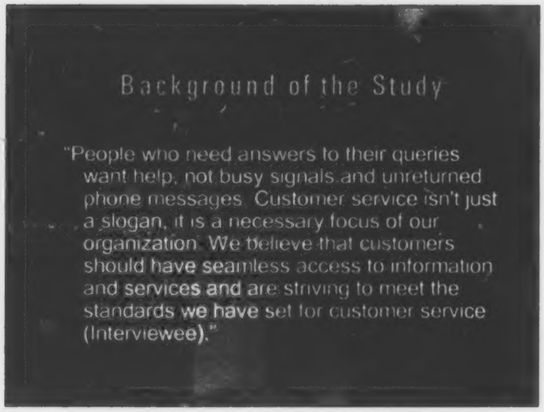
U.S. Department of Education

National Library of Education

Information Institute of Syracuse

ERIC/IT ASKERIC GEM VRD ED.gov Study

Researcher



Background of the Study

"People who need answers to their queries want help, not busy signals and unreturned phone messages. Customer service isn't just a slogan, it is a necessary focus of our organization. We believe that customers should have seamless access to information and services and are striving to meet the standards we have set for customer service (Interviewee)."

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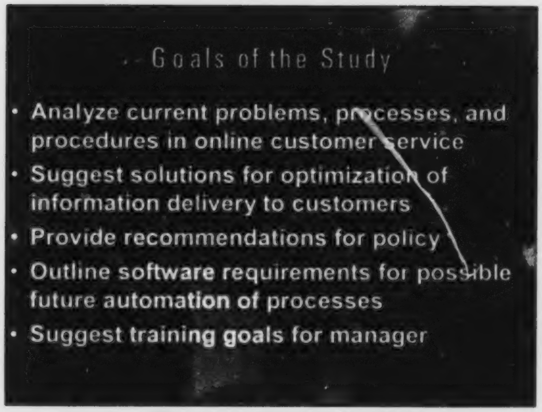
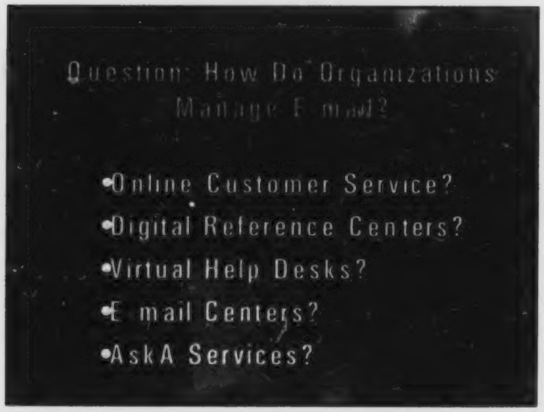


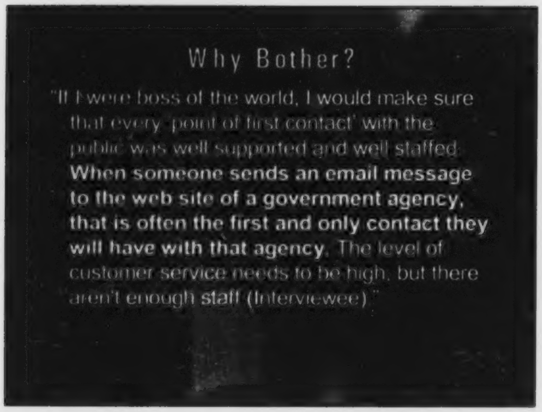
Goals of the Study

- Analyze current problems, processes, and procedures in online customer service
- Suggest solutions for optimization of information delivery to customers
- Provide recommendations for policy
- Outline software requirements for possible future automation of processes
- Suggest training goals for manager



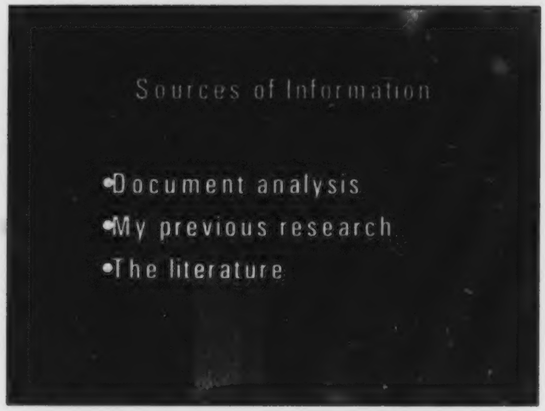
Question: How Do Organizations Manage E-mail?

- Online Customer Service?
- Digital Reference Centers?
- Virtual Help Desks?
- E-mail Centers?
- AskA Services?



Why Bother?

"If I were boss of the world, I would make sure that every 'point of first contact' with the public was well supported and well staffed. **When someone sends an email message to the web site of a government agency, that is often the first and only contact they will have with that agency.** The level of customer service needs to be high, but there aren't enough staff (Interviewee)."



Sources of Information

- Document analysis
- My previous research
- The literature

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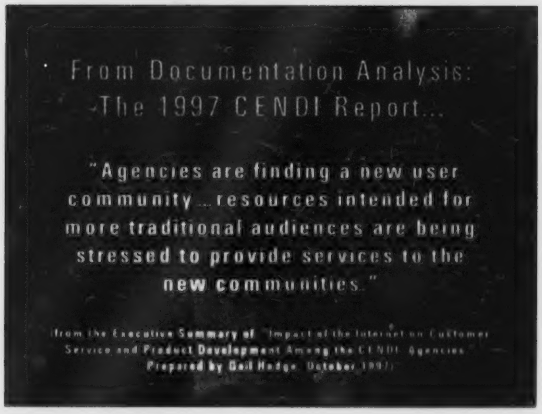
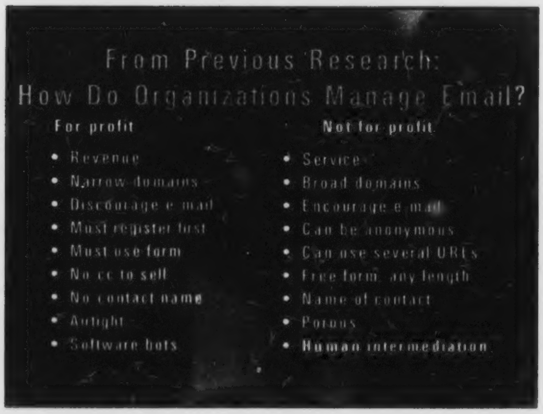


From Documentation Analysis: The 1997 CENDI Report...

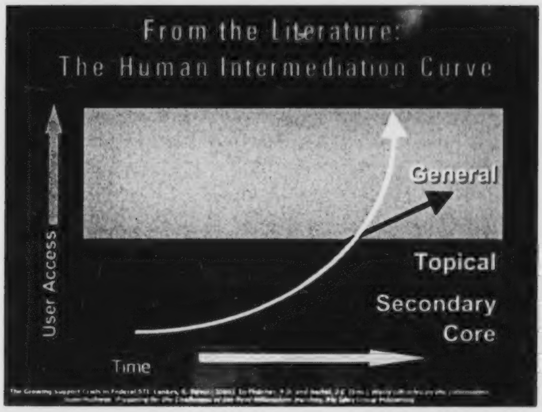
"Agencies are finding a new user community...resources intended for more traditional audiences are being stressed to provide services to the new communities."

(from the Executive Summary of "Impact of the Internet on Customer Service and Product Development Among the CENDI Agencies" Prepared by Gail Hodge, October 1997)

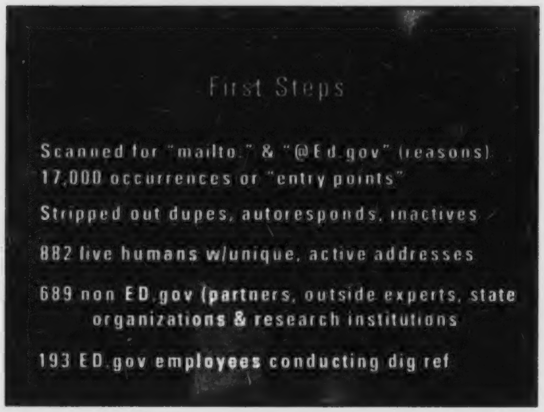


From Previous Research: How Do Organizations Manage Email?

For profit	Not for profit
Revenue	Service
Narrow domains	Broad domains
Discourage e-mail	Encourage e-mail
Must register first	Can be anonymous
Must use form	Can use several URLs
No cc to self	Free form, any length
No contact name	Name of contact
Airtight	Porous
Software bots	**Human intermediation**



From the Literature: The Human Intermediation Curve



First Steps

Scanned for "mailto:" & "@Ed.gov" (reasons)
17,000 occurrences or "entry points"

Stripped out dupes, autoresponds, inactives

882 live humans w/unique, active addresses

689 non ED.gov (partners, outside experts, state organizations & research institutions

193 ED.gov employees conducting dig ref

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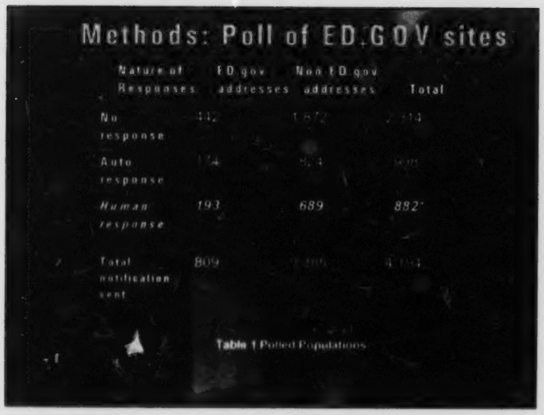
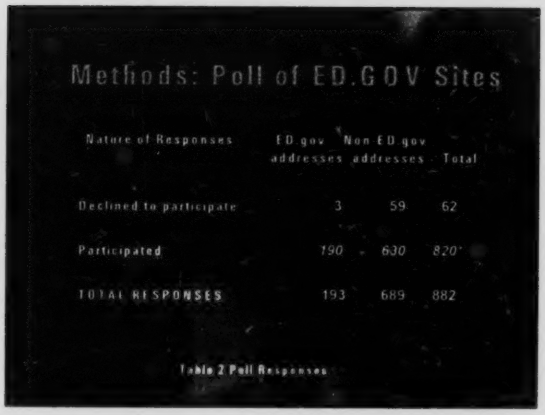


Methods: Poll of ED.GOV sites

Nature of Responses	ED.gov addresses	Non ED.gov addresses	Total
No response	442	1,672	2,114
Auto response	174	[illegible]	[illegible]
Human response	*193*	*689*	*882**
Total notification sent	809	[illegible]	[illegible]

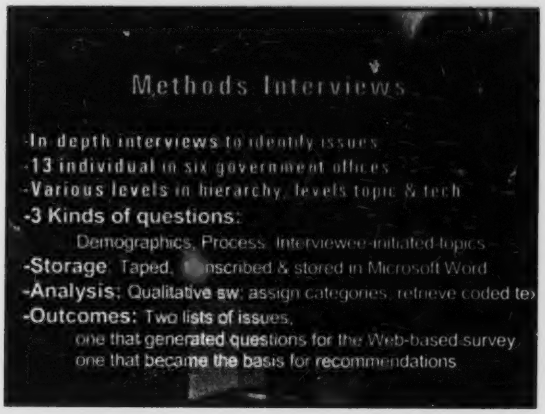
Table 1 Polled Populations



Methods: Poll of ED.GOV Sites

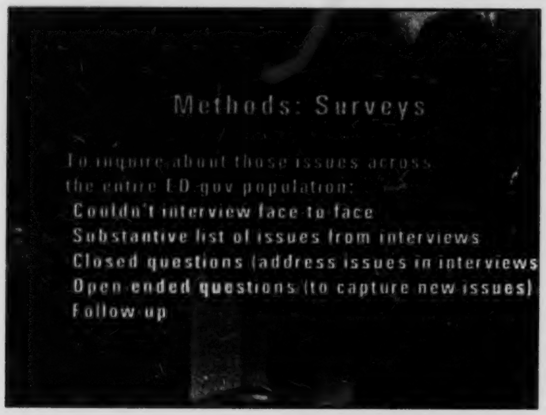
Nature of Responses	ED.gov addresses	Non ED.gov addresses	Total
Declined to participate	3	59	62
Participated	*190*	*630*	*820**
TOTAL RESPONSES	193	689	882

Table 2 Poll Responses



Methods Interviews

- **In depth interviews** to identify issues
- **13 individual** in six government offices
- **Various levels** in hierarchy, levels topic & tech
- **3 Kinds of questions:**
  - Demographics, Process, Interviewee-initiated topics
- **Storage**: Taped, transcribed & stored in Microsoft Word
- **Analysis:** Qualitative sw: assign categories, retrieve coded tex
- **Outcomes:** Two lists of issues,
  - one that generated questions for the Web-based survey
  - one that became the basis for recommendations



Methods: Surveys

To inquire about those issues across the entire ED.gov population:

- **Couldn't interview face-to-face**
- **Substantive list of issues from interviews**
- **Closed questions (address issues in interviews**
- **Open-ended questions (to capture new issues)**
- **Follow-up**

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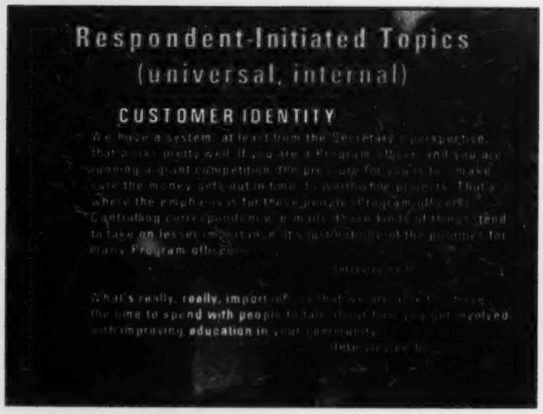


Respondent-Initiated Topics
(universal, internal)

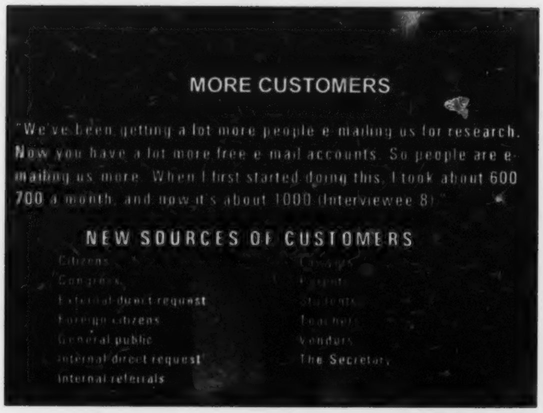
CUSTOMER IDENTITY

"We have a system, at least from the Secretary's perspective, that works pretty well. If you are a Program officer and you are running a grant competition, the pressure for you is to ... make sure the money gets out in time to worthwhile projects. That's where the emphasis is for these people (Program officers)." "Controlling correspondence, e-mails, those kinds of things, tend to take on lesser importance. It's just not one of the priorities for many Program officers."

Interviewee [illegible]

What's really, really important ... is that we are able to ... have the time to spend with people to talk about how you get involved with improving education in your community.

Interviewee [illegible]



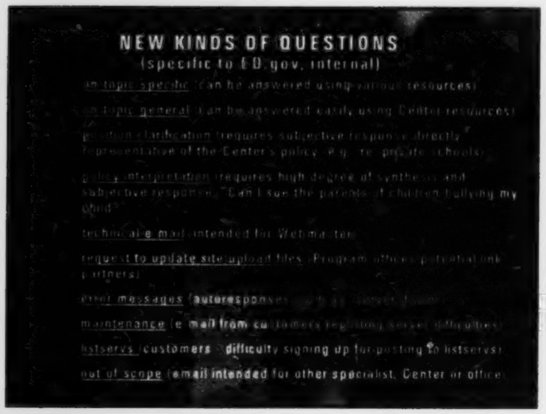
MORE CUSTOMERS

"We've been getting a lot more people e-mailing us for research. Now you have a lot more free e-mail accounts. So people are e-mailing us more. When I first started doing this, I took about 600 700 a month, and now it's about 1000 (Interviewee 8)."

NEW SOURCES OF CUSTOMERS

Citizens
Congress
External direct request
Foreign citizens
General public
Internal direct request
Internal referrals

Lawyers
Parents
Students
Teachers
Vendors
The Secretary



NEW KINDS OF QUESTIONS
(specific to ED.gov, internal)

on topic specific (can be answered using various resources)

on topic general (can be answered easily using Center resources)

position clarification (requires subjective response directly representative of the Center's policy, e.g., re: private schools)

policy interpretation (requires high degree of synthesis and subjective response, "Can I sue the parents of children bullying my child?")

technical e-mail intended for Webmaster

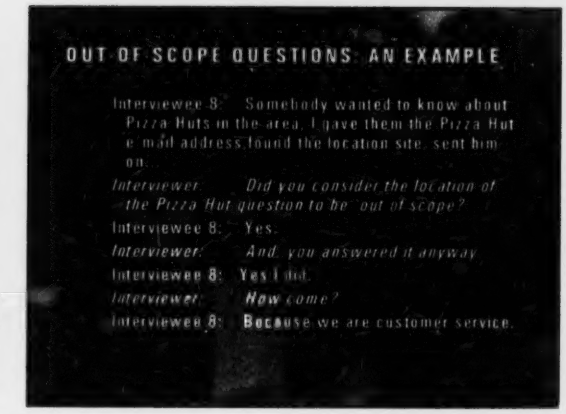
request to update site/upload files (Program offices/potential link partners)

error messages (autoresponses [illegible])

maintenance (e-mail from customers reporting server difficulties)

listservs (customers' difficulty signing up for/posting to listservs)

out of scope (email intended for other specialist, Center or office)



OUT OF SCOPE QUESTIONS: AN EXAMPLE

Interviewee 8: Somebody wanted to know about Pizza Huts in the area. I gave them the Pizza Hut e-mail address found the location site, sent him on...

Interviewer: Did you consider the location of the Pizza Hut question to be "out of scope"?

Interviewee 8: Yes.

Interviewer: And, you answered it anyway.

Interviewee 8: Yes I did.

Interviewer: How come?

Interviewee 8: Because we are customer service.

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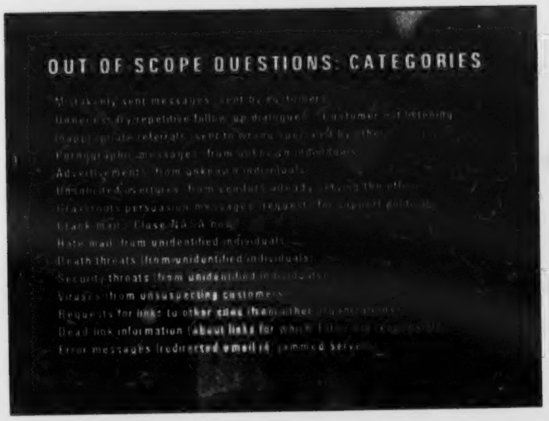
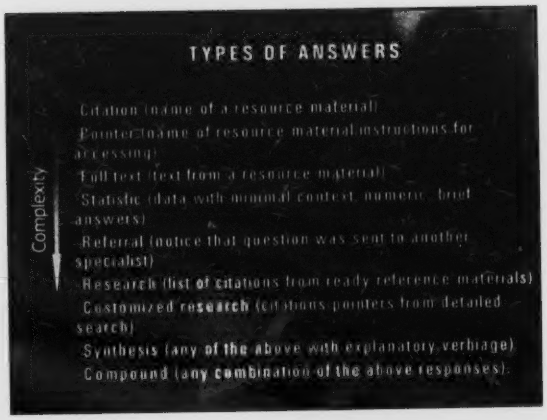


OUT OF SCOPE QUESTIONS: CATEGORIES

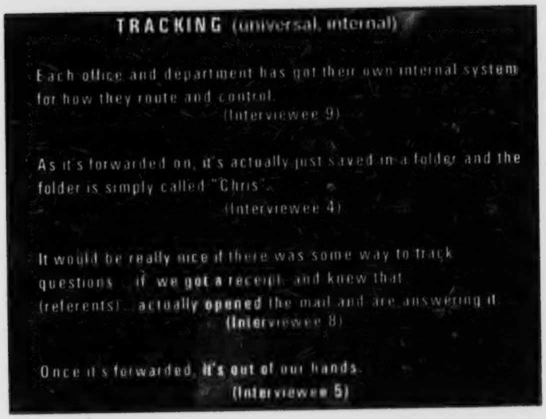
- Mistakenly sent messages (sent by customers)
- Unnecessary/repetitive follow up dialogues (customer not listening)
- Inappropriate referrals (sent to wrong specialist by other [illegible])
- Pornographic messages (from unknown individuals)
- Advertisements (from unknown individuals)
- Unsolicited overtures (from vendors already serving the office)
- Grassroots persuasion messages (requests for support political)
- Crack mail ("Close NASA now")
- Hate mail (from unidentified individuals)
- Death threats (from unidentified individuals)
- Security threats (from unidentified individuals)
- Viruses (from unsuspecting customers)
- Requests for links to other sites (from other organizations)
- Dead-link information (about links for which [illegible] not responsible)
- Error messages (redirected email, jammed servers)



TYPES OF ANSWERS

Complexity

- Citation (name of a resource material)
- Pointer (name of resource material/instructions for accessing)
- Full text (text from a resource material)
- Statistic (data with minimal context, numeric, brief answers)
- Referral (notice that question was sent to another specialist)
- Research (list of citations from ready reference materials)
- Customized research (citations/pointers from detailed search)
- Synthesis (any of the above with explanatory verbiage)
- Compound (any combination of the above responses).



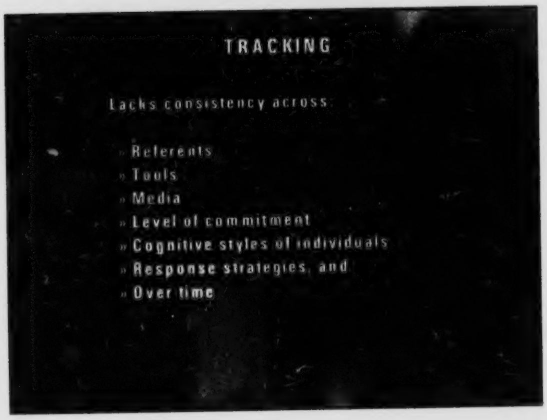
TRACKING (universal, internal)

Each office and department has got their own internal system for how they route and control.
(Interviewee 9)

As it's forwarded on, it's actually just saved in a folder and the folder is simply called "Chris".
(Interviewee 4)

It would be really nice if there was some way to track questions ... if we got a receipt, and knew that (referents) ... actually opened the mail and are answering it.
(Interviewee 8)

Once it's forwarded, it's out of our hands.
(Interviewee 5)



TRACKING

Lacks consistency across:

- Referents
- Tools
- Media
- Level of commitment
- Cognitive styles of individuals
- Response strategies, and
- Over time

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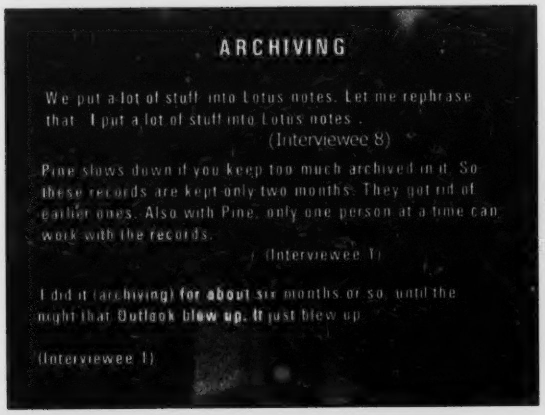


ARCHIVING

We put a lot of stuff into Lotus notes. Let me rephrase that. I put a lot of stuff into Lotus notes .

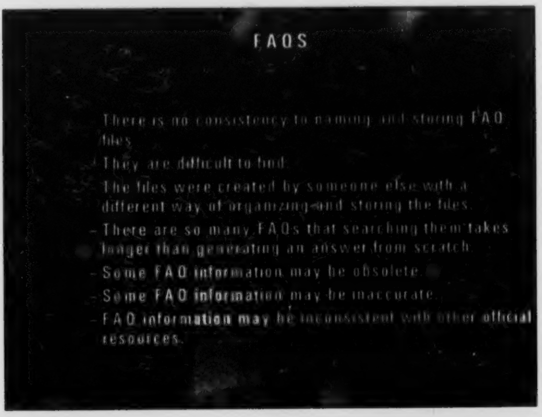
(Interviewee 8)

Pine slows down if you keep too much archived in it. So these records are kept only two months. They got rid of earlier ones. Also with Pine, only one person at a time can work with the records.

(Interviewee 1)

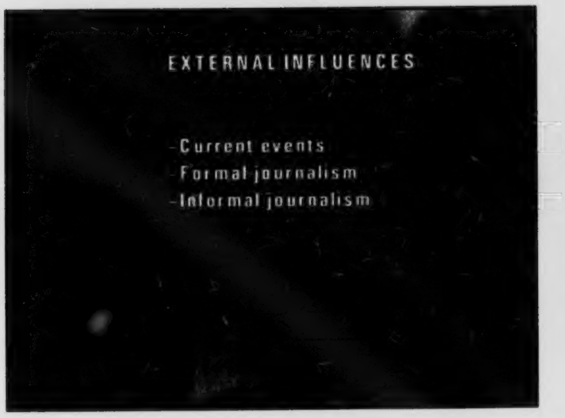
I did it (archiving) for about six months or so, until the night that Outlook blew up. It just blew up.

(Interviewee 1)



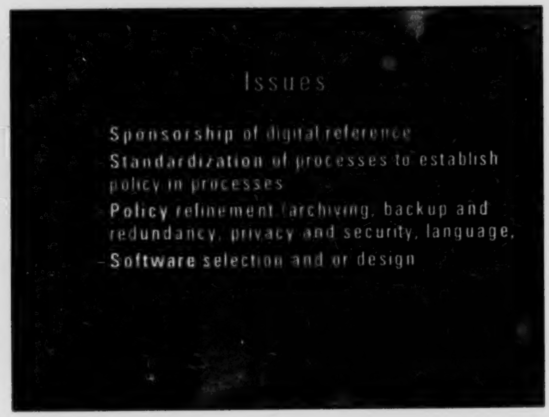
FAQS

- There is no consistency to naming and storing FAQ files.
- They are difficult to find.
- The files were created by someone else with a different way of organizing and storing the files.
- There are so many FAQs that searching them takes longer than generating an answer from scratch.
- Some FAQ information may be obsolete.
- Some FAQ information may be inaccurate.
- FAQ information may be inconsistent with other official resources.



EXTERNAL INFLUENCES

- Current events
- Formal journalism
- Informal journalism



Issues

- Sponsorship of digital reference
- Standardization of processes to establish policy in processes
- Policy refinement (archiving, backup and redundancy, privacy and security, language,
- Software selection and or design

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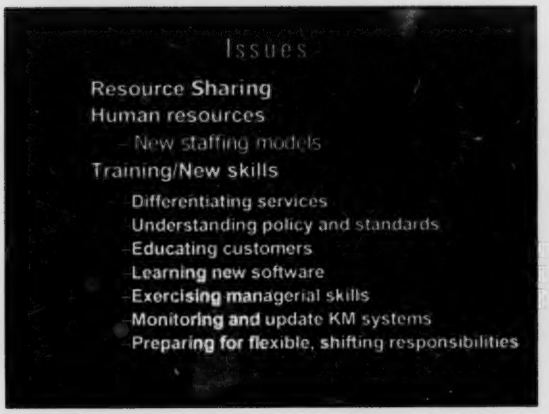
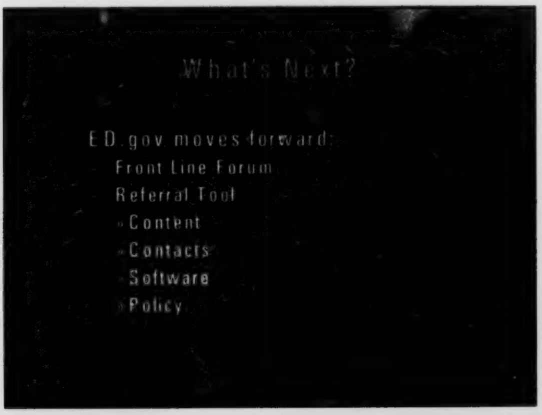


Issues

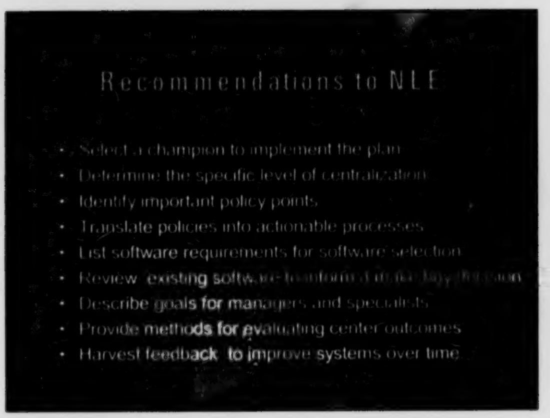
- Resource Sharing
- Human resources
  - New staffing models
- Training/New skills
  - Differentiating services
  - Understanding policy and standards
  - Educating customers
  - Learning new software
  - Exercising managerial skills
  - Monitoring and update KM systems
  - Preparing for flexible, shifting responsibilities



What's Next?

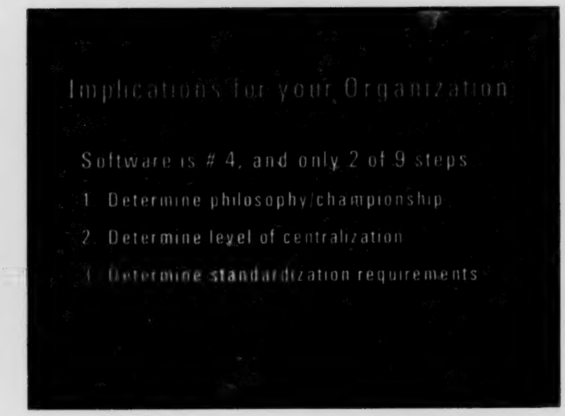
ED.gov moves forward:

- Front Line Forum
- Referral Tool
  - » Content
  - » Contacts
  - » Software
  - » Policy



Recommendations to NLE

- Select a champion to implement the plan
- Determine the specific level of centralization
- Identify important policy points
- Translate policies into actionable processes
- List software requirements for software selection
- Review existing software to inform a make/buy decision
- Describe goals for managers and specialists
- Provide methods for evaluating center outcomes
- Harvest feedback to improve systems over time



Implications for your Organization

Software is # 4, and only 2 of 9 steps

1. Determine philosophy/championship
2. Determine level of centralization
3. Determine standardization requirements

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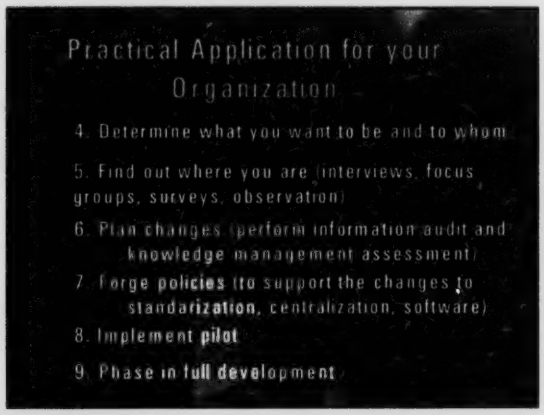
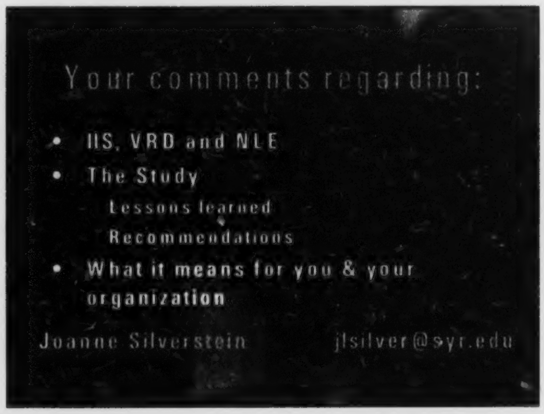


Practical Application for your Organization

4. Determine what you want to be and to whom
5. Find out where you are (interviews, focus groups, surveys, observation)
6. Plan changes (perform information audit and knowledge management assessment)
7. Forge **policies** (to support the changes to **standarization**, centralization, software)
8. Implement **pilot**
9. Phase in **full development**



Your comments regarding:

- IIS, VRD and NLE
- The Study
  - Lessons learned
  - Recommendations
- What it means for you & your organization

Joanne Silverstein jlsilver@syr.edu

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The Importance of Digital Reference in Supporting Critical Thinking in Distance Education

Joseph A. Meloche
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Abstract

This paper will discuss a range of issues relating to digital reference in support of distance education (DE). The development of a tailored digital reference service can be one of the key factors in a successful program of study in DE. This paper examines the increasing emphasis in DE for students to become independent learners with critical thinking skills, and the supporting role of libraries and reference services in that process.

The paper will address the following issues: the enhanced role of reference services in distance education programs and flexible learning initiatives, education for the provision of digital reference, the importance of supporting critical thinking strategies and fostering independent learning, and strategies for increasing cooperative ventures between academics and academic librarians.

The Australian Educational Context

The situation in the Australian academic educational environment has been directed by changes in government policy that provide support to higher education. Kemp (1999) identified that graduates should have knowledge and thinking skills as outlined in Table 1:

Table 1. Knowledge and Thinking Skills

Knowledge Skills	Thinking Skills
• Have an appropriate level of literacy and numeracy skills • Be able to identify, access, organize and communicate knowledge in both written and oral English • Have good listening skills • Have an international awareness • Have the ability to use appropriate technology to further the above	• Be willing to challenge current knowledge and thinking • Have conceptual skills • Have problem-solving skills • Be creative and imaginative thinkers • Be able to combine theory and practice • Be able to reflect on and evaluate their own performance

The components of the "Thinking Skills" section are almost synonymous with the key attributes of critical thinking, and they point to the reality of students' experiences. Students in Australia, as in many other parts of the world, are faced with an over-abundance of information, and they face the responsibility of critically assessing the worth of the information they find. Changes in the delivery of reference services will be most successful if they remain flexible and responsive to the model of lifelong learning.

A Question-Based Approach

A central problem with critical thinking is that it appears to be an abstract idea applied roughly across a range of subjects. In the worst cases, students are told to think critically after having been hand fed material throughout the semester. Students who have merely read supplied materials are not likely in a position to critically assess them. The provision of materials by an instructor may imply that such materials are the best or most appropriate, unless specifically offered as a worst-case example. While academics may supply material, it should be presented as an example of a more extensive collection. It is helpful to give the students a taste of a particular subject by suggesting specific resources, but it is critical that students make the effort to select, evaluate and assess the material they use in order to explore the subject further. In this way, critical thinking can be incorporated from the beginning of the students' research.

The following is a brief example of how this may take form:

1. **Learning Task**: Provide an overview of the subject and list learning expectations for students.
2. **Key Questions**: Provide extensive questions, some contained within sections and supported by brief examples.
3. **Expected Outcomes**: Link outcomes to the schedule and/or subsets of the subject.
4. **Subject Key To Literature**: Cite subject headings that help students locate material germane to their study.
5. **Authors**: Include a selected bibliography as a starting point for research.
6. **Date Range, etc.**: Supply helpful subject-related information, such as historical dates and geographic touchstones.
7. **Criteria for Assessment**: List criteria for assessment at each level, and for each assignment; the assessment should leave no doubt about what is required to achieve the various levels of success for each assessable item (Meloche, 2000).

The Enhanced Role of Reference Services

Reference services for DE students have traditionally been very supportive and proactive. Information specialists have worked closely with academic departments and subject coordinators to provide students with sufficient material to successfully complete their subjects. This allows information specialists to be precise in what they supply and informed about what is required.

The difference in taking a critical thinking approach is that the emphasis moves from the academic's requirements to the student's requirements, and the student's requirements vary greatly from student to student. The critical thinking model encourages students to define their information needs and assess the information they locate. The students adopt an active information literate approach to their learning.

Reference services, however, especially a distance education or virtual service, must be prepared to supply the resources and services that students require regardless of their geographic location. It is critical that such services be interactive with and responsive to the students.

Charles Sturt University (CSU) offers this type of reference service to its students. CSU is a multi-campus university with 19,473 DE students, as compared with 6,587 on-campus students (Charles Sturt University, 1999). Given this large DE population, which includes overseas students, delivery of reference services has posed a number of challenges to university staff. Flexible or alternative modes of delivery have been investigated.

Education for the Provision of Digital Reference

Education for the provision of digital reference occurs on two levels: education provided to students who are studying to become librarians and training provided by working reference librarians to students who use digital reference services.

In educating students in librarianship we seek to expose them to the benefits and the difficulties that are associated with remote or digital reference and to become increasingly aware of the processes that are involved in information seeking. Learning is structured so that students first read widely to develop a sense of the issues and problems that are being studied and argued, and then develop a situation or problem-based scenario that can be addressed.

Once such a problem scenario has been developed, the students then think through the possible approaches to take to resolve the various aspects of the problem and the types of resources and services that would assist in its resolution. In addressing this scenario, they also consider the audience or individuals concerned, the education and facilities that they can likely access, the suitability of the available systems, and services to which they will have access.

The purpose of this learning task is to get the students to work through a specific problem from the perspective of a specific group of users. Thus, they are expected to record the processes that they go through in addressing the problem and the considerations they make as they begin to construct a solution. It is expected that the solution will include a package of services and resources that cover all facets of the problem. By the time the students begin to evaluate specific resources or services, they are able to do so with an understanding of their limitations in education, experience, time, and financial resources.

The training provided by working reference librarians to students who use digital reference services is developing and it varies depending on the situation. Those universities that have residential schools for DE students still focus on in-house training and tours of the physical and electronic resources. This type of training, while unquestionably welcome by the students, may be of limited value when students return to their remote locations. It has the benefit of introducing the students to the professionals and the array of resources and services. However, this approach does not demonstrate the environment in which they will study and work. Alternatively, universities that do not have residential schools need to develop virtual training that will at least be appropriate for the remote students, and includes on-line tutorials, instructional Web resources, and on-line or interactive help services. Electronic communication supplements information resources and aids, and will greatly affect the delivery of reference services in the future.

Virtual reference service to remote or DE students presents a number of opportunities and challenges. Advantages include the development of resources and activities that foster a learning community among DE students. It is important to provide dedicated professionals and services in order to effectively utilize technological solutions (e.g., MOOs, Net Meeting, Forums, etc.) that can add value to the service.

Supporting Critical Thinking Strategies and Fostering Independent Learning

Critical thinking approaches require an enormous amount of support services and resources. It is a common misconception that strategies requiring students to think independently and critically will free the time of educator and information professionals; experience has shown the opposite is true. As opportunities increase for students to work independently and critically, the need for assistance increases accordingly. Thus if measures are undertaken to use the "question based approach," resources and strategies to support the students must be in place.

To successfully achieve this approach, the instructor, in consultation with the librarian, needs to identify the students in a specific course of study. The librarian, like the students, should be supplied with the subject material. It is critical that the librarian be aware of or at least have ready access to information such as deadlines and requirements for the course. It is also important that support for remote or DE students is not seen as a lower priority than support for on campus students. The level of need for the distance education student is greater; this should be reflected in the level of support for these students. This has not been the case at CSU and possibly at other universities providing distance education. Internal students are sometimes viewed as "real" students and DE students are considered less of a priority. Traditionally, many library services, even computerized, have been only accessible locally.

Many barriers confront distance education and complementary library services including:

- **Access to facilities**: Computer labs, printing facilities, local databases, local CD-ROM services, microfiche and multi-media collections are unavailable to distance education students.
- **Access to support**: Reference desk, lab support, and advisory staff frequently work in a location adjacent to the collections or equipment.
- **Access to information**: Web pages cannot compare with the support of a well-staffed reference department that exists in addition to a wide range of reference and advisory resources in a variety of print and electronic formats.

While it may be possible for DE students to have their own equipment, and for libraries to provide DE or remote reference staff, few do. It should be remembered that all of the above services are expected for internal students and yet DE students need greater levels of services and support. While it may not be suitable or even desirable to duplicate the services provided for DE students, it is essential that their needs be met.

Research is required to examine the perceptions of DE students in regard to their use of remote or virtual reference services. Too often we have simply tried to duplicate existing services for internal students or to teach DE students to use services that we introduce, without the benefit of research into how students understand information, information technology and information seeking. Students' needs should be first considered during the design stage of services, not the delivery stage.

Strategies for Increasing Cooperative Ventures

One strategy for collaboration between academics and academic librarians is research. The research is necessary and should involve the full range of participants, from librarians to academics to instructional designers, and most importantly, students. The research must be capable of exploring how systems needs are conceptualized by the different participants in the chain of use (Meloche, 1999), and all should participate in the development of workable strategies.

The problems and issues associated with the increased use of remote and virtual reference cannot be solved after implementation of services has occurred. Students should not be asked to evaluate only the services that currently exist. They need to be asked what they think *should* exist and how they might use it. They need to be participants or subjects in research that will affect how information services will evolve.

References

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Assessing Users' Needs

Pauline Lynch Shostack
AskERIC

Presentation

Introduction

AskERIC responds to over 40,000 questions a year. The questions cover a multitude of subject areas and come from a wide range of users. Responses are sent within two business days to requests received at AskERIC. Requests are received via our Web form (http://www.ask.org/Qa/userform.html) and from direct e-mail. AskERIC prides itself on providing education information with the personal touch. To accomplish this goal, user studies and data collection are constantly conducted. The findings from several of these efforts have led to changes and enhancements to our services and resources.

This year, AskERIC conducted three different studies to find out even more about our users. In particular, the studies provide insight into the topics users are interested in, geographic location of users, and satisfaction level with responses received. A faculty member at the University of Washington, Seattle is conducting research to compare responses across different types of AskA services.

Additionally, doctoral students and faculty occasionally conduct outside research on various aspects of service. In 1999, a doctoral student at Syracuse University completed a dissertation on information needs, using AskERIC users as subjects.

This report summarizes the various methods that AskERIC has used to obtain information about users as well as results. Below is a list of the user studies and data collection methods that are discussed in this presentation:

- Surveys - conducted in 1998 and 2000
- Focus group - conducted in January 2000 with a local group (Syracuse, NY) from the education community
- Data collection from the service's question submission form - data collected from January 1 to the present
- Outside research efforts
    - Dissertation - PhD Student at Syracuse University conducted study for dissertation in the Fall of 1999, and another student conducted a study in 1997 on the service
    - Faculty Research - Comparison of responses across AskA Services is currently being conducted

Assessing Users' Needs

Virtual Reference Desk Conference 2000

Overview

- Methods
  - Surveys
  - Focus Groups
  - Question Submission Form
  - Subject Line Analysis
  - Outside Research Efforts
    - Dissertations
    - Faculty Research
- Results
- Action taken
- Future directions

Survey Data Collection Details

	Survey '98	Survey '00
Method of Data Collection	E-mail Survey	E-mail Survey
Time Frame	Feb- Mar 1998	Feb - Mar 2000
Pool of respondents	689	443
Number of actual responses	196	79
Response Rate	28.4%	17.8%

Survey 1998 & 2000

- The design methodologies for both surveys were fundamentally the same.
- The majority of changes were in the question format and wording.
- The cover letter was also enhanced to provide more options for submission and other details.

2000 Survey Timeline

- Refine survey documentation and design questionnaire (Summer)
- Pretest survey (September)
- OMB Approval (November – December)
- Administer survey (January)
- Analyze data (March)
- Report Findings (Late March/April)

2000 Sampling Procedures

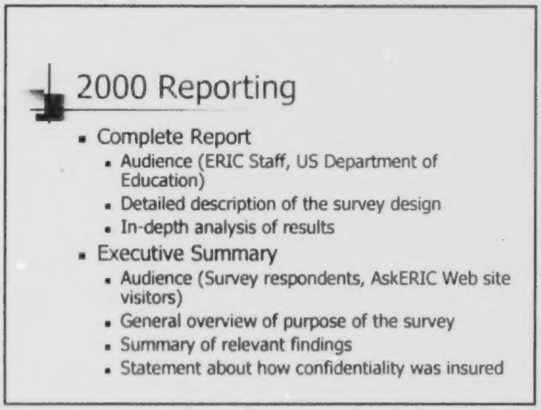
- Surveys were sent to every third user of the AskERIC Service via e-mail 3 days after they received a response.
- A script was created to pull the e-mail address for each survey recipient from the carbon copy accounts of each clearinghouse.

2000 Instrumentation

- Cover letter (enhanced since 1998)
  - Subject line: AskERIC Survey: Please help us serve you better!
  - Introduction to survey
  - Approximate time to complete survey (10 mins)
  - Submission options (e-mail, web, postal)
  - Deadline (2/29/00)
  - Result information (e-mail required)
  - OMB Paperwork Burden Statement

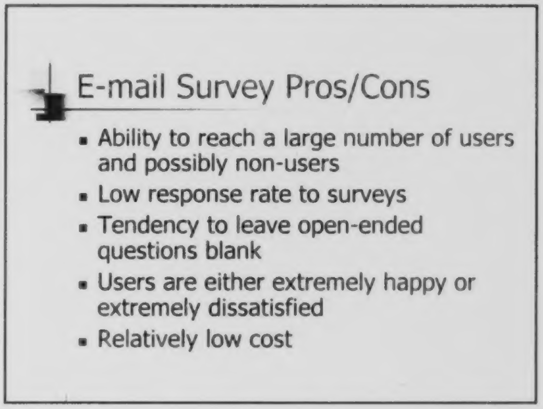
2000 Instrumentation

- Self-administered electronic survey
  - Questions based on feedback from the 1998 AskERIC survey & pretest
  - Instructions at the beginning and throughout
  - E-mail & Web versions
  - Several types of questions
    - Likert Scale
    - Yes/No
    - Open Ended



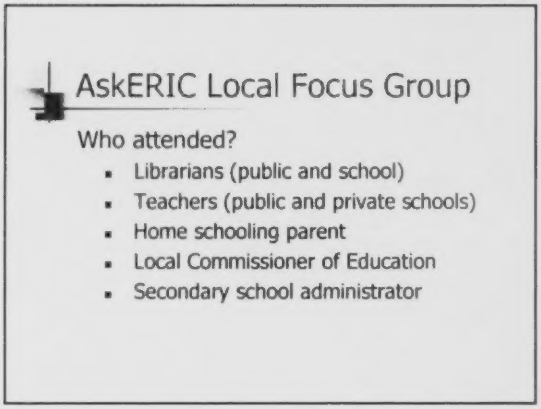
2000 Reporting

- Complete Report
  - Audience (ERIC Staff, US Department of Education)
  - Detailed description of the survey design
  - In-depth analysis of results
- Executive Summary
  - Audience (Survey respondents, AskERIC Web site visitors)
  - General overview of purpose of the survey
  - Summary of relevant findings
  - Statement about how confidentiality was insured



E-mail Survey Pros/Cons

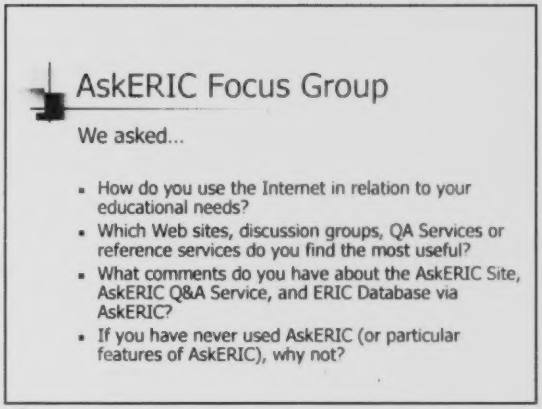
- Ability to reach a large number of users and possibly non-users
- Low response rate to surveys
- Tendency to leave open-ended questions blank
- Users are either extremely happy or extremely dissatisfied
- Relatively low cost



AskERIC Local Focus Group

Who attended?

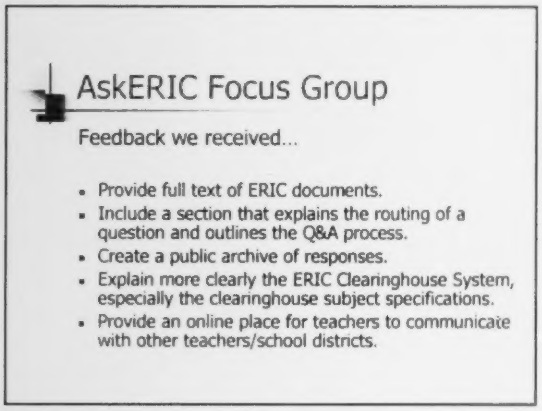
- Librarians (public and school)
- Teachers (public and private schools)
- Home schooling parent
- Local Commissioner of Education
- Secondary school administrator



AskERIC Focus Group

We asked...

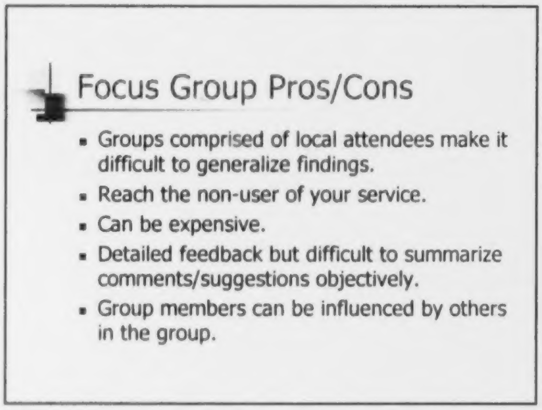
- How do you use the Internet in relation to your educational needs?
- Which Web sites, discussion groups, QA Services or reference services do you find the most useful?
- What comments do you have about the AskERIC Site, AskERIC Q&A Service, and ERIC Database via AskERIC?
- If you have never used AskERIC (or particular features of AskERIC), why not?



AskERIC Focus Group

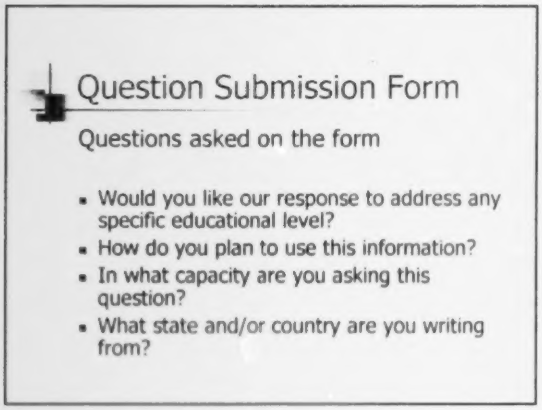
Feedback we received...

- Provide full text of ERIC documents.
- Include a section that explains the routing of a question and outlines the Q&A process.
- Create a public archive of responses.
- Explain more clearly the ERIC Clearinghouse System, especially the clearinghouse subject specifications.
- Provide an online place for teachers to communicate with other teachers/school districts.



Focus Group Pros/Cons

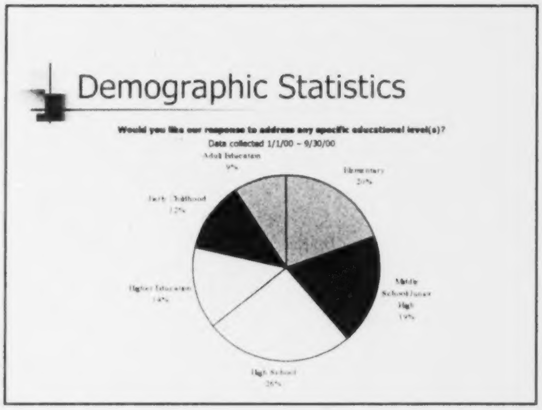
- Groups comprised of local attendees make it difficult to generalize findings.
- Reach the non-user of your service.
- Can be expensive.
- Detailed feedback but difficult to summarize comments/suggestions objectively.
- Group members can be influenced by others in the group.



Question Submission Form

Questions asked on the form

- Would you like our response to address any specific educational level?
- How do you plan to use this information?
- In what capacity are you asking this question?
- What state and/or country are you writing from?



Demographic Statistics

Would you like our response to address any specific educational level(s)?

Data collected 1/1/00 – 9/30/00

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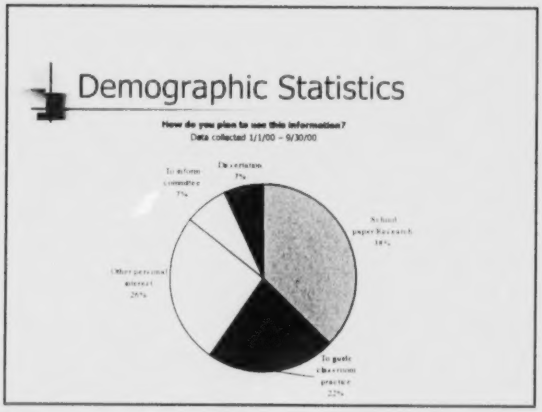
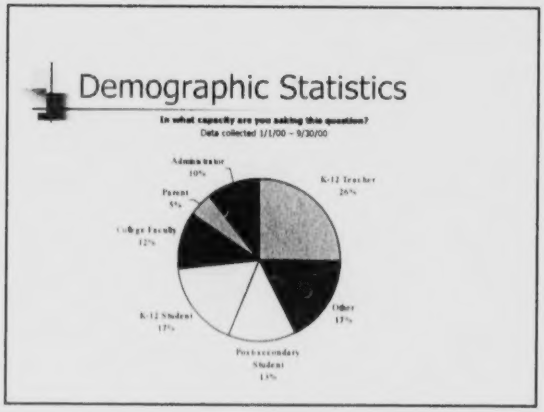


Demographic Statistics

How do you plan to use this information?

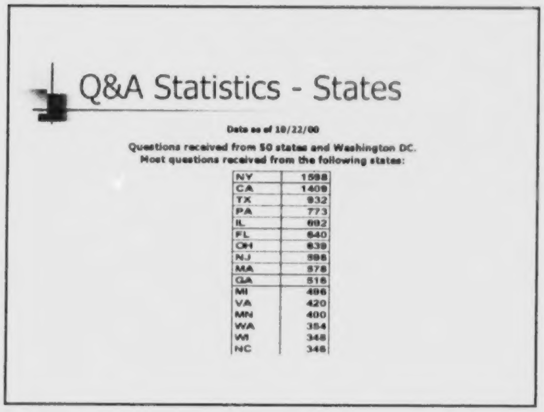
Data collected 1/1/00 – 9/30/00



Demographic Statistics

In what capacity are you asking this question?

Data collected 1/1/00 – 9/30/00

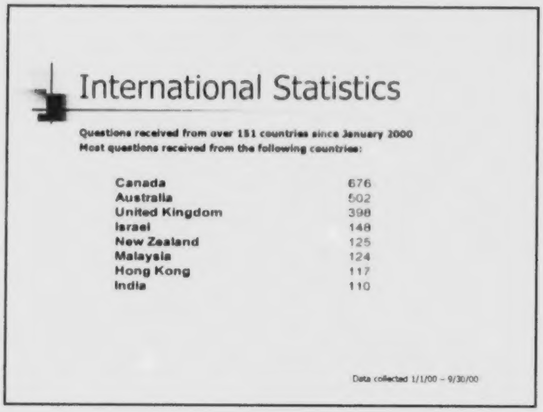


Q&A Statistics - States

Data as of 10/22/00

Questions received from 50 states and Washington DC.
Most questions received from the following states:

NY	1598
CA	1409
TX	932
PA	773
IL	692
FL	640
OH	639
NJ	598
MA	578
GA	516
MI	496
VA	420
MN	400
WA	354
WI	348
NC	346



International Statistics

Questions received from over 151 countries since January 2000
Most questions received from the following countries:

Canada	676
Australia	502
United Kingdom	398
Israel	148
New Zealand	125
Malaysia	124
Hong Kong	117
India	110

Data collected 1/1/00 – 9/30/00

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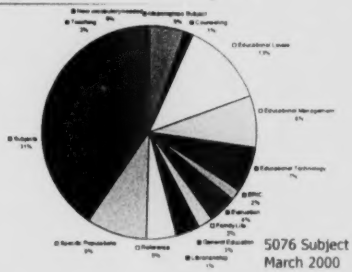
Submission Form Pros/Cons

- Multiple submissions of the same question can skew results.
- Users that select all choices for questions.
- Simple method to reach a large percentage of users.

Subject Line Analysis



5076 Subject Lines
March 2000

Subject Line Pros/Cons

- We are now able to answer the question, "What types of questions do you receive most often?"
- Subject line may not reflect total scope of question.
- Not everyone is changing subject lines to reflect question topic.

Dissertation

Use of Human Intermediation in Information Problem Solving:
A User's Perspective
By Makiko Miwa

Goal: to increase our understanding of the purposes and situations for which users request various tasks of human intermediaries.

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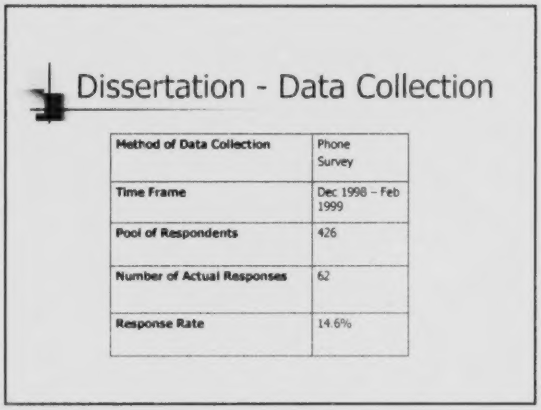
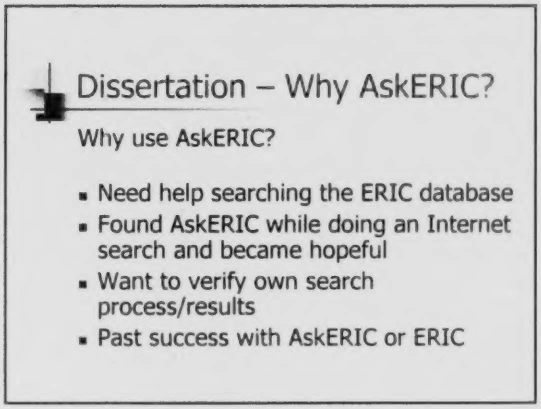


Dissertation - Data Collection

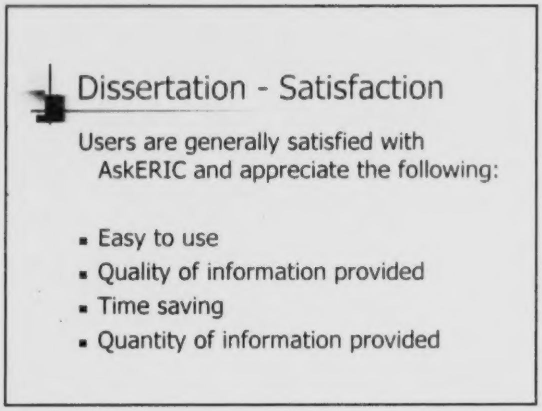
Method of Data Collection	Phone Survey
Time Frame	Dec 1998 – Feb 1999
Pool of Respondents	426
Number of Actual Responses	62
Response Rate	14.6%



Dissertation – Why AskERIC?

Why use AskERIC?

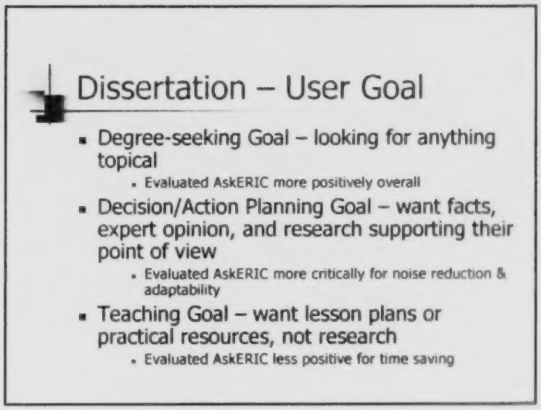
- Need help searching the ERIC database
- Found AskERIC while doing an Internet search and became hopeful
- Want to verify own search process/results
- Past success with AskERIC or ERIC



Dissertation - Satisfaction

Users are generally satisfied with AskERIC and appreciate the following:

- Easy to use
- Quality of information provided
- Time saving
- Quantity of information provided



Dissertation – User Goal

- Degree-seeking Goal – looking for anything topical
    - Evaluated AskERIC more positively overall
- Decision/Action Planning Goal – want facts, expert opinion, and research supporting their point of view
    - Evaluated AskERIC more critically for noise reduction & adaptability
- Teaching Goal – want lesson plans or practical resources, not research
    - Evaluated AskERIC less positive for time saving

Dissertation – Recommendations

Researcher Recommendations for AskERIC: (based on user suggestions)

- Adjust responses to reflect user's situation
- Clarify information needs when necessary
- Update links to Internet resources periodically
- Provide links to other AskA services that can directly answer the question
- Determine the user's level of information problem solving (Q&A Form)
- Provide clearer explanations of how to obtain full text

Dissertation - Recommendations

Researcher Recommendations for ERIC:
(based on user suggestions)

- Develop digital ERIC documents with links from citation
- Provide links to e-journals from citation
- Provide terse conclusions in ERIC abstracts
- Provide ERIC Digests for major educational theories and models (e.g., Bloom's Taxonomy)
- Include detailed copyright information for ERIC documents
  - # of copies permitted for educational use, permission to reproduce does not apply to third parties, procedure to obtain permission to make additional copies

Faculty Research

- Faculty at the University of Washington worked on a project that involved reviewing responses sent from various AskA services.
- The project has just concluded and results and a final report are pending.

Research Pros/Cons

- Outside perspective and angle can be a plus.
- Focus is usually not on the service itself. Findings pertaining to the service are secondary.
- Phone survey responses are difficult to summarize objectively.

Results - Common Issues

- Full-text concerns (all)
- Discussion groups continue to be ranked lower than other resources (surveys)
- Inability to understand codes in citations (surveys)
- Response did not fully address question (dissertations, surveys)
- Process not fully understood (all)

Results - Common Compliments

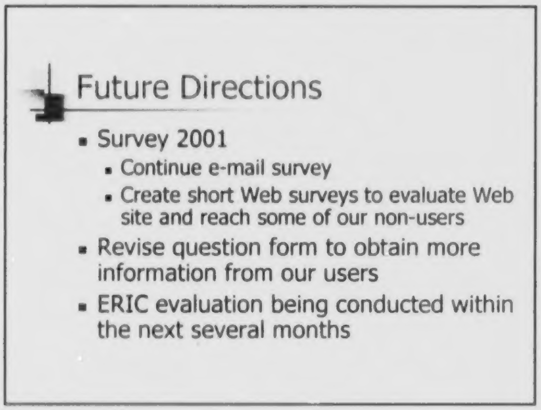
- Quick response (dissertation, surveys)
- Information was on target (dissertation, surveys)
- Appreciate large quantity of information (dissertation, survey)
- Saved users time (dissertation, survey 98)

Results - Demographics

- Elementary Education Scope
  - Over 25% for both surveys and question submission form
- K-12 Teachers/Post-Secondary Students
  - Make up almost 60% of respondents in most data collection methods
- New/Repeat Users
  - 50% for each category in both surveys

Action Taken Based on User Feedback

- Redesign of QA form
- ERIC Database enhancement on AskERIC site
- Creation of specialized letterheads
- Addition of response archive to QA portion of AskERIC Site



Future Directions

- Survey 2001
  - Continue e-mail survey
  - Create short Web surveys to evaluate Web site and reach some of our non-users
- Revise question form to obtain more information from our users
- ERIC evaluation being conducted within the next several months

User Situations in Digital Reference Service: An Evaluation of the AskERIC Q&A Service

Makiko Miwa
Epoch Research Corporation

Presentation

Introduction

This research addressed the situations in and the reasons for which people make requests of human intermediaries in solving their information problems. This study looked at the use of AskERIC, a digital reference service specializing in educational research and practice [part of the Educational Resources Information Center (ERIC)], as a case study in human intermediation. The study collected data through telephone interviews with 62 AskERIC clients. Interview data were analyzed using a modified constant comparative technique. The findings were synthesized into a conceptual model that captured patterns of associations between users' situational factors and tasks they requested of AskERIC. This model provides a framework for a better understanding of users and ways to incorporate their needs into future digital reference services and system design. In addition, the study developed two taxonomies that are potentially useful for future research and practice. "Taxonomy of Tasks Requested of Intermediaries" (see Table 1) has potential for identifying and categorizing tasks requested of human intermediaries; "User-Based Evaluation Criteria of the AskERIC Q&A Service" (see Table 2) has potential for identifying strengths and weaknesses of a variety of digital reference services.

User Situations in Digital Reference Services: An Evaluation of the AskERIC Q&A Service

October 16-17, 2000
by
Makiko Miwa Ph D.
Miwamaki@aol.com

Outline

- Why study human intermediation?
- Study overview
- Research questions
- Research design
- Study limitations
- Study findings
- Implications for AskERIC and other Digital Reference Services (DRS)
- Implications for ERIC

Why Study Human Intermediation?

- Weak theories and contradictory findings
  - lack users' perspective
  - lack categorization of requested tasks
  - lack process approach
  - ignore external (social & environmental) situations
- Users of Internet-based digital reference services were not well studied

Study Overview

- Goal: to increase our understanding of why and in what situations users request certain tasks of human intermediaries.
  - take an exploratory approach
  - focus on users' perspective
  - capture information problem solving (IPS) as a process
  - naturalistic
  - account for dynamically changing internal and external situations
  - Invite clients of AskERIC Q&A Service as participants

Research Questions

RQ1: What kinds of tasks do users request of human intermediaries?

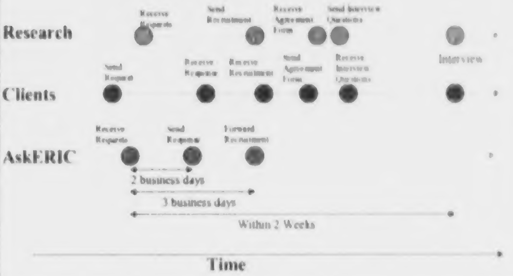
RQ2: What situational factors do users perceive to be salient when they make requests of human intermediaries?

RQ3: What patterns of associations, if any, are observed between users' situational factors and tasks requested of human intermediaries?

Research Design (3 Phases)

- Phase 1
  - Developed preliminary conceptual framework (literature review)
  - Selected study setting (clients of AskERIC Q&A service)
  - Designed and tested data collection instruments
- Phase 2
  - Analyzed past requests (developed taxonomy)
  - Interviewed participants by phone
  - Analyzed telephone interview (content analysis)
- Phase 3
  - Identified patterns of associations among situational factors
  - Modified conceptual framework
  - Reported findings and implications

Temporal Sequence of Telephone Interview Procedure


Research
Clients
AskERIC
Receive Requests
Send Recruitment
Receive Agreement Form
Send Interview Questions
Interview
Send Request
Receive Response
Receive Recruitment
Send Agreement Form
Receive Interview Questions
Receive Requests
Send Response
Forward Recruitment
2 business days
3 business days
Within 2 Weeks
Time

Study Limitations

- Capture salient and memorable situational variables
- Not generalizable to the population of AskERIC users
  - purposeful sampling
  - did not recruit minors and non-US clients
  - self-selection bias

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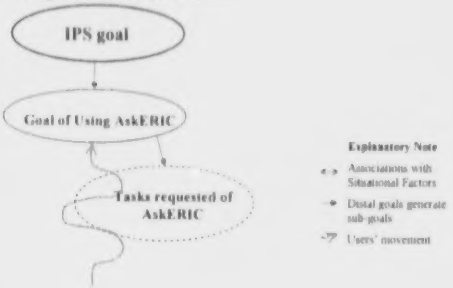
Study Findings 1/9

- Multiple levels of User Goals
  - IPS goals: What participants intended to accomplish through the IPS process
  - Goals of using AskERIC: What participants intended to accomplish through the use of AskERIC
  - Tasks requested: What participants requested of AskERIC

Multiple Levels of User Goals

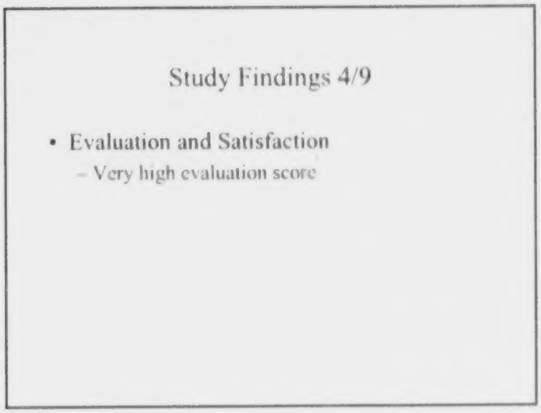

IPS goal
Goal of Using AskERIC
Tasks requested of AskERIC
Explanatory Note
Associations with Situational Factors
Distal goals generate sub-goals
Users' movement

Study Findings 2/9

- Associations between user goals and tasks requested
  - When users' goals were to find relevant information or sources of information, their requests are consistent with all or part of the goals.
  - When users' goals were to define information needs, (e.g., decide topic of a paper) their requests do not reflect the goals explicitly.
  - When users' goals were to evaluate their own search, their requests do not reflect the goals explicitly.

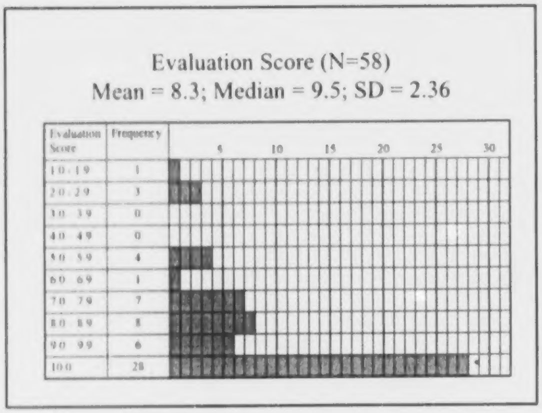
Study Findings 3/9

- Users' situational variables associated with their selection of AskERIC
  - Self-searching before sending requests
    - Self-searching failure
    - Encountered AskERIC & opportunistic hope
    - Verification of own search process/results
  - Experiences using AskERIC & ERIC
    - Users who had experience using AskERIC had more elaborated mental model of AskERIC and attachment with it
  - Perceived level of IPS skill
    - Users with a low level of perceived IPS skill require help throughout IPS processes



Study Findings 4/9

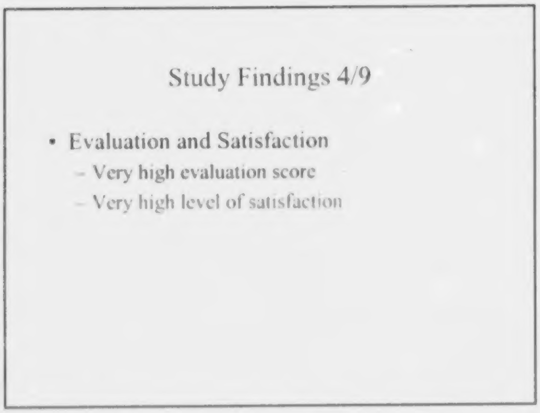
- Evaluation and Satisfaction
  - Very high evaluation score



Evaluation Score (N=58)

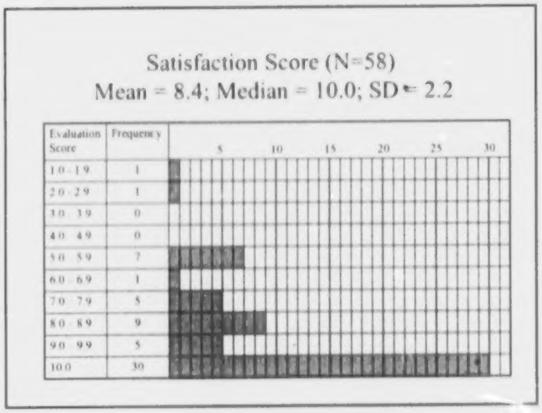
Mean = 8.3; Median = 9.5; SD = 2.36

Evaluation Score	Frequency
1.0 - 1.9	1
2.0 - 2.9	3
3.0 - 3.9	0
4.0 - 4.9	0
5.0 - 5.9	4
6.0 - 6.9	1
7.0 - 7.9	7
8.0 - 8.9	8
9.0 - 9.9	6
10.0	28



Study Findings 4/9

- Evaluation and Satisfaction
  - Very high evaluation score
  - Very high level of satisfaction



Satisfaction Score (N=58)

Mean = 8.4; Median = 10.0; SD = 2.2

Evaluation Score	Frequency
1.0 - 1.9	1
2.0 - 2.9	1
3.0 - 3.9	0
4.0 - 4.9	0
5.0 - 5.9	7
6.0 - 6.9	1
7.0 - 7.9	5
8.0 - 8.9	9
9.0 - 9.9	5
10.0	30

Study Findings 4/9

- Evaluation and Satisfaction
  - Very high evaluation score
  - Very high level of satisfaction
  - A high level of agreement between evaluation and satisfaction scores (r=.80)

Evaluation Criteria (See Table 2)

- **Easiness** (easy to use, make IPS easier, physical accessibility, formatting)
- **Noise reduction** (linkage, online linkage to full text materials, selectivity of information, type of information, search skill of intermediary)
- **Quality of information** (comprehensiveness, correctness, depth, currency)
- **Adaptability** (answer to the question, usefulness, interactivity, clarity of information, understand requests)
- **Time savings** (response speed, time-saving in IPS)
- **Cost savings** (cost-saving in IPS)
- **Quantity** (as much as wanted, too much, too little)
- **DRS features** (acknowledgment, humanness, responsiveness, tone of message)
- **User situations** (wording of request messages, frustration level, novelty, comprehend response, willingness to read)

Study Findings 5/9

- Users appreciate AskERIC for:
  - Easiness
  - Quality of information provided
  - Time savings
  - Quantity of information provided
  - DRS features
    - acknowledgment
    - humanness
    - responded
    - tone of messages

Study Findings 6/9

- Users' situations associated with evaluation of AskERIC responses
  - wording of request messages
  - frustration level
  - novelty of information obtained
  - comprehension of responses
  - willingness to read

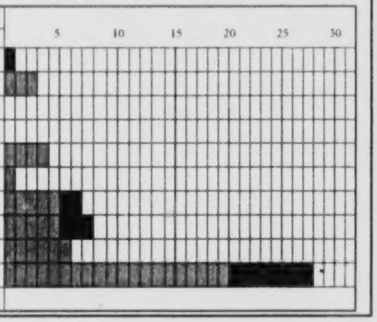
Study Findings 7/9

- Situational Variables Associated with Evaluation (1)
  - Self-searching before sending requests
    - Evaluate information provided by AskERIC by comparing it with their own search process/results

Evaluation Score & Search before AskERIC (N=58)

No Search: Mean=8.5; Median=10; SD=2.61

Evaluation Score	Search before Yes	Search before No
10-19	0	1
20-29	3	0
30-39	0	0
40-49	0	0
50-59	4	0
60-69	1	0
70-79	5	2
80-89	5	3
90-99	6	0
100	20	8
Total	44	14



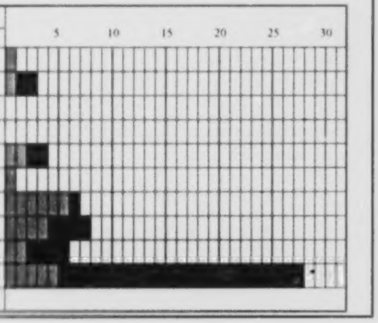
Study Findings 7/9

- Situational Variables Associated with Evaluation (1)
  - Self-searching before sending requests
    - Evaluate information provided by AskERIC by comparing it with their own search process/results
  - Experience using AskERIC
    - Evaluate information provided by AskERIC by comparing it with past positive experience

Evaluation Score & Experience in AskERIC (N=58)

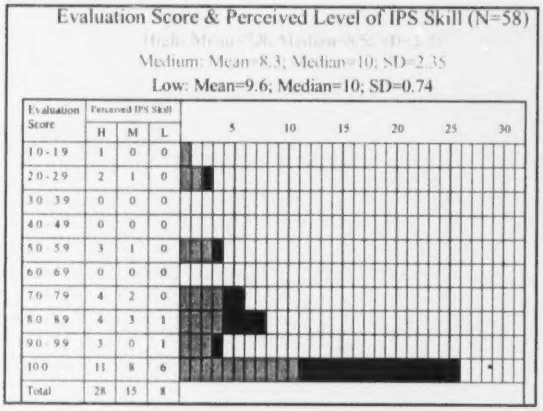
No Experience: Mean=8.7; Median=10; SD=2.08

Evaluation Score	Experience Yes	Experience No
10-19	1	0
20-29	1	2
30-39	0	0
40-49	0	0
50-59	2	2
60-69	1	0
70-79	1	6
80-89	4	4
90-99	2	4
100	5	23
Total	17	41



Study Findings 7/9

- Situational Variables Associated with Evaluation (1)
  - Self-searching before sending requests
    - Evaluate information provided by AskERIC by comparing it with their own search process/results
  - Experience in using AskERIC
    - Evaluate information provided by AskERIC by comparing it with past positive experience
  - Perceived level of IPS skill
    - Users with a low level of perceived IPS skill evaluate responses provided by AskERIC more positively than those with a higher level of perceived IPS skill



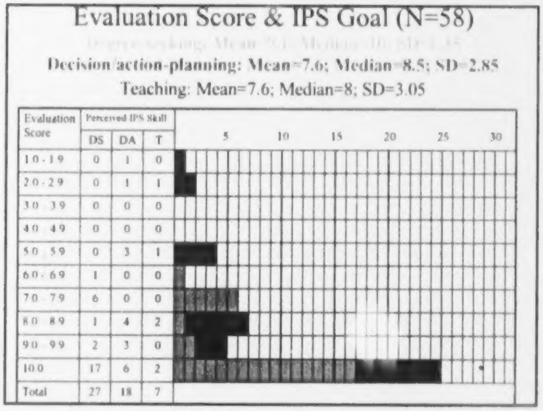
Evaluation Score & Perceived Level of IPS Skill (N=58)

High: Mean=[illegible]; Median=8.5; SD=[illegible]
Medium: Mean=8.3; Median=10; SD=2.35
Low: Mean=9.6; Median=10; SD=0.74

Evaluation Score	Perceived IPS Skill		
	H	M	L
10-19	1	0	0
20-29	2	1	0
30-39	0	0	0
40-49	0	0	0
50-59	3	1	0
60-69	0	0	0
70-79	4	2	0
80-89	4	3	1
90-99	3	0	1
100	11	8	6
Total	28	15	8

Study Findings 8/9

- Situational Variables Associated with Evaluation (2)
  - Users' IPS goals
    - Degree-seeking (n=28)
    - Decision/action-planning (n=20)
    - Teaching (n=7)
    - Others (n=7)



Evaluation Score & IPS Goal (N=58)

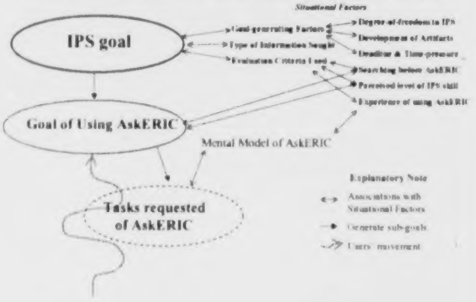
Degree-seeking: Mean=[illegible]; Median=10; SD=[illegible]
Decision/action-planning: Mean=7.6; Median=8.5; SD=2.85
Teaching: Mean=7.6; Median=8; SD=3.05

Evaluation Score	Perceived IPS Skill		
	DS	DA	T
10-19	0	1	0
20-29	0	1	1
30-39	0	0	0
40-49	0	0	0
50-59	0	3	1
60-69	1	0	0
70-79	6	0	0
80-89	1	4	2
90-99	2	3	0
100	17	6	2
Total	27	18	7

Study Findings 8/9

- Situational Variables Associated with Evaluation (2)
  - Users' IPS goals
    - Participants with degree-seeking goal tended to evaluate information provided by AskERIC more positively compared to others
    - Participants with decision/action-planning goal tended to be more critical in evaluating information provided by AskERIC for noise reduction and adaptability
    - Participants with teaching goal tended to be less positive in evaluating responses of AskERIC for time-savings

Associations among User Goals and Situational Factors


Situational Factors
IPS goal
Goal-generating Factors
Type of Information Sought
Evaluation Criteria Used
Degree of freedom in IPS
Development of Artifacts
Deadline & Time-pressure
Searching before AskERIC
Perceived level of IPS skill
Experience of using AskERIC
Goal of Using AskERIC
Mental Model of AskERIC
Tasks requested of AskERIC
Explanatory Note
Associations with Situational Factors
Generate sub-goals
Users' movement

Study Findings 9/9

- Request messages are short and ambiguous
- Users' information needs may be biased due to "pretended rationality"
- Users assume digital documents are available on the Internet
- Users have difficulty locating ERIC Digests (special reports on Web site)

Implications for AskERIC and other DRSs

- Maintain highly appreciated features
- Useful situational variables
  - user goals (IPS goals & goals of using AskERIC)
  - type of information sought (form/content)
  - self-searching before sending requests
  - experience of using AskERIC
  - perceived level of IPS skill
- Provide direct answers to specific questions

Implications for ERIC

- Provide online links from metadata to digital fulltext on the Internet
- Make fulltext ERIC documents available on the Internet
- Make it easier to specify type of information
- Make it easier to identify empirical research that support users' contentions
- Make it easier to find ERIC Digests

Information Seeking and User-Intermediary Interactions: Informing the Design of Digital Reference Services

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Abstract

Understanding how users seek information on Web sites and interact with intermediaries[1] can inform the design of digital reference services. More specifically, the ways that users frame their questions and intermediaries conduct reference interviews can provide valuable guidance for designing and supporting these functions in digital reference services. This paper reports on research on the users of statistical information and their interactions with intermediaries and translates findings into design guidelines. Data-gathering methodology is also discussed.

Introduction

This paper reports on investigations that were part of a project designed to understand and support user information seeking on Web sites. While Web sites cannot be equated with digital reference services, the two share a similar goal--the provision of information and services to a set of users. Therefore, what we have learned about certain aspects of user information-seeking behavior on these sites is directly relevant to the design of digital reference services. In addition, the larger context in which people seek information on a Web site may inform our understanding of the design of the particular component, "reference service."

This study investigated Web sites that provided access to United States Federal Statistical Information. More specifically, our investigations focused on the United States Bureau of Labor Statistics Web site (http://www.bls.gov) and on FedStats (http://www.fedstats.gov) which is a product of the United States Interagency Council on Statistics designed to facilitate access to statistics produced by Federal agencies.They include statistical reports and tabular data, as well as tools for the location and manipulation of that information (e.g., search engines, rudimentary indexes). In addition, the sites included *mailto* links (which prompt e-mail messages to designated contacts), telephone numbers of various agency helpdesks, and comment forms. This type of Web site can be considered a digital library with a digital reference service. Agency personnel responded to user questions and managed the mail and telephone inquiries. This structure parallels many AskA and digital reference services that distribute questions and coordinate the answer process. Our knowledge of user action and interaction on the site has relevance for the design of a digital reference service.

This paper reports on findings in the areas of user questions and uncertainties, and intermediary-user interactions. The theoretical basis of this study is the literature of information seeking behavior and human computer interaction; the research in this field is summarized as "Information Needs and Uses" in the *Annual Review of Information Science and Technology*. To summarize, the literature indicates that:

- Users experience gaps, anomalous states of knowledge and cannot tell intermediaries what they need or want;

- Users come to intermediation settings with information needs, as well as affective needs, and a repertoire of behaviors;
- Information seeking is "situational" and "contextual;" each person is in a unique place in his or her life.

These points indicate that to support information seeking, knowledge of users' tasks and how users articulate what they know and do not know may enable us to provide better tools. While not generally reflected in the literature on information seeking[2], intermediaries form an important link between users and information. Thus we might expect that knowledge of user interactions would provide perspectives on those instances when users are unable to accomplish their tasks.

The domain of human computer interaction provides theoretical perspectives on the nature of human interaction with computing tools. Again, the literature in this area is rich and is impossible to summarize succinctly. For this project, two general principles shaped our work. First, user action is interaction. To understand how people seek information via a Web site, it was necessary to consider the user, the organization, and the Web site as potentially interacting[3]. Second, significant insight into user behavior and the implications for design came from looking at moments of "breakdown," moments when users were blocked, confused, or uncertain. The work reported here examined moments of "breakdown" that resulted in the submission of questions and comments.

Methodology

The two theoretical domains and specific principles previously articulated drove the methodological choices for the study. To understand user behavior, it was necessary to collect data from real users performing real tasks in real situations. We collected data on users' questions using e-mail inquiries, interviews with users, and interviews with intermediaries. We also collected data on intermediary-user interaction by observing these interactions in real settings and conducting intermediary interviews. The following details indicate our actions and provide guidance for those wishing to duplicate them. An effort is made to limit the discussion to aspects relevant across settings; however, it is necessary to explain some aspects of the specific setting.

Collection and Analysis of E-mail Messages

E-mail messages were analyzed to identify user tasks, questions, problems, and uncertainties. E-mail messages sent to the Bureau of Labor Statistics Web site over two months (in 1997) were analyzed. There were 569 messages containing 827 questions. Although it is important to keep in mind that e-mail requests represent a self-selected sample of the overall user population, the volume of requests and variety of topics and user expertise represented make this sample valuable.

Researchers inductively derived a content analytic coding scheme for the e-mail messages. An inductive strategy is useful in situations where no taxonomy exists prior to analysis (as was the case here). The scheme development process followed general principles provided by Krippendorf (1980) and Holsti (1969). As messages were read, categories were preliminarily developed. After the analyst had a sense that no new categories were being added to the scheme, the preliminary scheme (along with associated coding rules) was formalized. A second analyst then received the scheme and both analysts coded the same subset of the messages (10% of the sample). Coding decisions were jointly reviewed to confirm that the scheme was detailed enough for any coder to reach the same decision about codes for a message. The statistic kappa (Cohen, 1960) was used to verify that the coding agreement is due to the reliability of the coding scheme and not random chance. At the point our kappa was tabulated, our value was .71[4].

The coding scheme employed is indicated below (Tables 1A and 1B). Two dimensions were coded for each question. In all cases, the correspondent's language was used. The first dimension captured the content of the question. The second captured the nature, or strategy of the query. Both dimensions are necessary to understand the nature of a particular question.

Table 1A. E-mail Coding Scheme: Content Dimension

Dimension Name	**Dimension Definition**
System	Questions about the Web site itself
Data	Questions related to actual values of variables or for actual information (e.g., "I need info on the economic outlook for Atlanta")
Methods	Anything related to how the data were collected such as how many surveys were conducted
Metadata	Information about the meanings of variables, codes, etc.
Publications	Requests for physical documents
Costs	Questions relating to how much things cost (such as "how much would it cost me to get data on...")
Tools	Questions related to data manipulation tools on the site
Other	All other types of content

Table 1B. Strategy/Question Type Dimension

Dimension Name	**Dimension Definition**
How	The process
When	The time of
Where	Location/access to, including directions to answer questions such as "can you direct me to..."
Do you have	Existence of information/entity
Is this an error	
Who	
Other	

Using the schemes, messages were coded and numbers of questions tabulated. After determining that only a few categories had large numbers of questions associated with them (what/data, where/data and do you have/data), a more specific scheme was developed to gain a more detailed understanding of the nature of these questions. The scheme that was developed had two dimensions. The first is the content dimension: what specific type of statistic is being requested? The second captures characteristics of the data requested. Three characteristics were indicated by requesters: regionality, time, and amount (or number) of statistics wanted. An analyst coded all questions which fell into the three most numerous categories listed above.

User Interviews

Telephone interviews were conducted during January-February 1998, with thirteen past users of the FedStats Web site. The chair of the FedStats taskforce sent an e-mail message requesting participation in a short interview to FedStats users who had submitted an online comment form after October 1997 and who had included an e-mail address. Approximately 150 users were contacted. If the user indicated willingness to participate in an interview, the e-mail message was forwarded to the researcher who attempted to contact the person. Thirteen interviews were scheduled and conducted. Respondents were asked to remember the last time they had used FedStats and to describe what they had been attempting to find. Additionally, they were asked to comment more generally on FedStats features that either helped or hindered them during their interactions. Finally, they were asked for any suggestions for improving FedStats.

These interviews provided useful data. Many users, however, were unable to report specifically on their interactions, due to the length of time between their actual system usage and the interview. Additionally, the response rate to our request for participation was low and, though some users expressed an interest in participating, they did not return e-mail messages or declined an interview.

Intermediary Interviews

Intermediaries within the agencies and in other settings were also interviewed. A total of 26 people in nine agencies were interviewed on site in January 1998. A total of 19 intermediaries in libraries, schools, and research organizations were also interviewed. Most interviews were conducted at the respondent's workplace, but two were conducted via phone due to logistical difficulties. The distribution of intermediaries was as follows:

- Eight librarians (one from a state library, three from K-12 schools, two from public libraries, two from academic libraries)
- Two K-12 teachers (social sciences, biology)
- Nine research consultants (in business, agriculture, education, and public health)

Intermediaries were asked the following five questions:

1. What resources/knowledge assist you in answering statistical questions?
2. What are common types of prerequisite information that users often need to know before you are able to answer their questions?
3. How do you inform them of this information (tell them, refer them elsewhere, etc.)?
4. When you try to help people narrow the focus of their questions, are there particular methods you suggest, such as by geography, by time period, etc?
5. To what other agency or organization do you most frequently refer users if you cannot answer their questions?

Intermediaries provided useful data about how they assist users and were able to provide synthesized understandings of users' tasks and problems. In a Web environment, it is often difficult to contact users as they are geographically distributed. In addition, since Web sites are used by a wide range of users, it would be difficult to contact a sufficient number of users to gain a broad picture of usage. Given these issues, intermediaries provide the best source of data about users.

Observations of User-Intermediary Interactions

In addition to interviewing intermediaries about how they helped users, researchers observed five intermediaries at their workplaces as they worked with various users. These observations were conducted in February and March 1998. Intermediaries were observed for two hours, during which time the observer made notes on any and all user interactions (in person or on the telephone) that had a statistical component. To maximize the observer's ability to gather data on such interactions, observations were scheduled only with intermediaries in busy settings where there was a high likelihood of statistical questions being asked. (For example, the government documents section of the local university library was used rather than the public library.)

The intermediaries observed were:

- Two reference librarians in the business, science, and technology section of a busy urban public library (during two separate observation periods)
- Two reference librarians in the government documents section of a large academic library (during two separate observation periods)
- A reference librarian in a state library data center

Informing the Design of Electronic Reference Services

The data collection and analysis processes previously described generated a wealth of findings and design recommendations specific to the domain studied. However, some findings clearly extend beyond the domain studied and will be discussed.

Our first conclusion is that design must be informed by investigation of real users and intermediaries. We have found intermediaries to be reasonable proxies for users when it is difficult to gain access to users. In addition, examinations of information seeking outside the context of a particular service under investigation provides a perspective of user behavior not bound by that system. As such, one can see aspects of behavior that may be inhibited by the system and/or can better understand how a given behavior on a system fits into the larger context.

Analysis of user e-mail messages and comments provided a rich picture of users' questions and uncertainties. Our schemes provide one approach to categorization of these comments although others are certainly possible. Using our analysis, we were able to pinpoint specific types of information requested and redesign the Web site to provide that information in obvious ways. In an electronic reference setting, one may begin to build FAQs or other tools for common types of questions. It is also important to consider the intent of the question. For instance, is the user's intention to locate, be directed to information, or something else? This knowledge can be used to provide strategy tools such as search tips within a given domain.

Our analysis of user-intermediary interaction provided a description of the critical role that intermediaries play in the identification and use of information by end users. Generally, intermediaries share these characteristics:

1. **Knowledge of relevant publications**. They keep relevant materials close at hand, and know what is available locally. Intermediaries identified key publications that they frequently used. The analysts within an agency, for example, named a common set of resources. These resources were kept close at hand for ready reference. Additionally, analysts were aware of what was available to them locally (on a Web site, a local library, etc.). This knowledge was used to respond to queries and to help users understand what the analyst could respond to rapidly.

2. **Knowledge of referrals**. Uniformly, the intermediaries spoke about providing referral services as a critical component of their jobs. Most expressed the desire to be the last person the user talked to. If unable to help, they used their knowledge of other personnel within their organization or beyond their organization to whom they could refer the user. Agency intermediaries were knowledgeable about experts and researchers in their domain and could refer people to these experts or to their publications.

3. **An understanding of the specifics of data collection, dissemination tools, and the information life cycle within their domain**. They understand how data are collected, synthesized and analyzed, how various statistics are calculated, and how they are disseminated and presented. They also understand the presentation formats, knowing which tables might be appropriate and how to interpret those tables. This knowledge enables intermediaries to match user queries to appropriate sources, find the most current sources, and provide guidance to users about appropriate use of the statistics.

4. **An understanding of how to help users express and refine their information needs**. One of the most critical roles of the various intermediaries is to help users express their information needs in ways that enable the intermediary to map the need to the available data or refine the need so that available data can be used to address the need. Intermediaries conduct reference interviews in which they ask users to provide information about what they are seeking, how they intend to use the data, how much time they have available for searching and data retrieval, etc. These types of questions were asked by many of the intermediaries in the study. Intermediaries help users focus their information needs through use of probes specific to the domain. Thus in statistical domains, for example, users are asked about the geographic unit. Some intermediaries indicated that they sometimes show users some results and ask if the results are on target.

5. **Technical and searching skills**. Intermediaries provide information about technical and/or searching skills so that users can access, print, and download data.

Intermediaries are clearly a critical link in many users' current processes of accessing information. Which of these services can be automated and which cannot? This is a critical question for electronic reference services, and this study points out that negotiation and translation aspects may be critical in getting a user to the needed information.

Our recommendations for digital reference services based on this work are as follows:

1. Consider whether it is possible to provide a digital library of key resources and experts.
2. Provide additional guidance (either tutorials or automated tools) to improve the ability of users to search, download, print, and otherwise manipulate various resources.
3. Consider whether intermediaries should provide additional interpretation services. Currently many analysts provide information (or pointers) but do not interpret information. It might also be possible to provide information on strategies that enable users to identify other experts.
4. Continue to build bridges among sets of experts.

Conclusion

This paper has argued that valuable sources of design guidance for digital reference services are investigations that are grounded in the real contexts of users and their interactions with sources and intermediaries. Important aspects of intermediary behavior were identified through interviews with and observations of intermediaries in real-time-oriented settings. As digital reference services continue to develop, it is critical that we continue to understand and exploit what we know about what makes good reference service. This paper suggests some strategies and tools for coming to that understanding.

Acknowledgments

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Notes

1. For this paper, an intermediary is defined as any human that assists another in accomplishing information tasks; intermediaries included librarians, analysts with the agencies studied, teachers, etc.

2. There have been some empirical studies of intermediary-user behavior. Ingwersen (1982), Nardi and O'Day (1999) and Miwa (2000) are representative examples.

3. An explication of these interactions and the design implications may be found in Hert and Marchionini (1997).

4. A value of .6 or higher is generally considered sufficient to indicate that the agreement is not the result of chance.

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Understanding Intermediation in a Digital Environment: An Exploratory Case Study

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Abstract

The research currently being conducted investigates intermediation that occurs through an asynchronous text-based computer-mediated method, such as e-mail and Web forms. The goal is to describe and gain a further understanding of user-intermediary interactions. Its main objectives are (1) to investigate how and under what circumstances digital user-intermediary interactions occur and (2) to identify factors that might affect these interactions. The research is an exploratory case study of a hospital library information-provision service and adopts a naturalistic approach to investigate the phenomenon. This paper details the research design. Some preliminary results of the ongoing study will be presented at the 2nd Annual Virtual Reference Desk Digital Reference Conference.

Problem Statement

A new information-seeking scenario has been created with the pervasive use of the Internet: users from remote locations have direct access to information resources and human expertise. Although users in this situation feel empowered in their ability to access information, many may experience inefficiency in their search activities and uncertainty in the quality of the retrieved resource (Vishik, 1999). The lack of organization of information resources on the Internet, inadequate search engines, and difficult database interfaces (Borgman, 1996) are, among others, contributors to such inefficiency. Furthermore, the user cannot count on traditional mechanisms, such as peer review, for quality control of Internet resources. In such an electronic environment, intermediaries play an important role in helping users with their information-seeking activities.

Traditionally, human intermediation occurs in a face-to-face mode where users express their information problems (or what they know about them) to intermediaries. The Internet brought a potential facilitator to user-intermediary communication as users use an electronic medium, such as e-mail, to interact with intermediaries. In recent years, this potential flexibility has been prompting information-provision services (libraries, information centers, help desks, and others) to offer human-mediated information services through the Internet. Despite this trend, there remains a lack of knowledge concerning the effectiveness of this medium. The success rate of these services, measured by the number of people who use them, ranges from low, as in the case of academic libraries' digital[1] reference services (Schilling-Eccles & Harzbecker, 1998) to high, as in the case of the growing demand for AskA[2] services (Lankes, 1998). Such a discrepancy in information providers' experiences calls for a better understanding of intermediation in digital environments. Unfortunately, researchers have given very little attention to this problem.

Understanding the nature of user-intermediary interactions in digital environments and identifying factors that affect these interactions would make important theoretical and pragmatic contributions toward information services design and operation. The proposed exploratory case study aims to gain such knowledge.

Literature

Two bodies of literature were identified as the most informative for this study: that which addresses interactions between users and intermediaries in information seeking processes and computer-mediated communication literature. Although attention has been devoted to studying face-to-face interactions in library settings, studies of digital interactions are scarce. Most such literature is anecdotal (e.g., Bristow, 1992; Roysdon & Elliot, 1988; Sloan, 1998; Still & Campbell, 1993; Whitaker, 1989). Few empirical studies have focused on digital reference services (Abels, 1996; Abels & Liebsher, 1994; Bushallow-Wilbur, De Vinney, & Whitcom, 1996; Lankes, 1998; Schilling-Eccles & Harzbecker, 1998). Results of studies in this area seem to be in preliminary stages and indicate a lack of understanding of interactions occurring through computer-mediated communication. Such knowledge is necessary in order to implement digital information-provision services that better match users' needs.

Since this research focuses on digital user-intermediary interactions, the body of literature in computer-mediated communications (CMC) related to e-mail use in organizations seems relevant to the proposed study. Although this literature is extensive, the theories and models emerging from these studies are neither conclusively supported nor refuted (Fulk & Boyd, 1991; Fulk, Schmitz, & Steinfield, 1990; Garton & Wellman, 1995; Markus, 1994; Rudy, 1996; Steinfield, 1992; Walther, 1992).

Two major streams of research are prevalent in computer-mediated communications research: (1) that which studies how individuals choose a medium to convey a message -- media choice theories and models, and (2) that which studies the impact of an elected medium on communication. Both research streams are informative to this study. The first stream provides insight into factors related to the medium that may affect its use for a particular task. The second stream of research is important because the impact of using a communication medium may also influence an individual's use of it.

Study Purpose

The goal of this research is to describe and gain a further understanding of user-intermediary interactions using a text-based computer-mediated medium, such as e-mail and Web forms. Considering users' and intermediaries' perspectives, the study will be guided by the following questions:

- How and under what circumstances does digital user-intermediary interaction occur?
- What are the factors that might affect digital user-intermediary interaction?

Methodology

This research offers an exploratory case study of a digital information-provision service. It adopts a qualitative and naturalistic approach and employs grounded theory methods in data analysis (Glaser & Strauss, 1967; Strauss & Corbin, 1990). It is not based on existing theories; rather it aims to discover characteristics of the phenomenon through inductive analysis of data gathered in the field. The literature reviewed in this study is used mainly to stimulate the researcher's "theoretical sensitivity" (Strauss & Corbin, 1990).

The researcher established a set of criteria for selecting a research site for the study. The major concern was to choose a service that does not have policies that strongly restrict user-intermediary interactions and that would serve as an exemplar of a digital information-provision service. An exemplar is not meant to be a *typical* site but rather one that provides opportunities for discovery of a wide range of factors that may be affecting the user-intermediary interactions. A hospital library information-provision service was chosen as the research site. Characteristics of the site include:

- provides services to a variety of users, such as medical professionals, nursing students, patients, and laypeople
- uses diverse media to interact with users
- has been operating as a virtual library for two years
- promotes a balance between accuracy, promptness and comprehensiveness in answering users' requests, since the information provided by the service may serve clinical purposes (patient's treatment).

In conducting the proposed case study, the researcher will use various sources of evidence:

- logs of text-based computer-mediated user-intermediary interactions
- data gathered during interviews with users
- data gathered during interviews with intermediaries
- site observations
- organizational publications (print or electronic), such as organizational documents, the information service's brochures, forms and Web site interfaces.

Interviews will be conducted to collect information about the contexts in which user-intermediary interactions have occurred. Observations of intermediaries and users will contribute additional contextual information to these interactions and, finally, organizational documents, brochures, forms and Web-site interfaces will contribute identifying organizational policies that may affect interactions.

The main objective of the interviews is to elicit contextual facts and subjects' perceptions related to the interaction being investigated. Interviews will be based on the log of an interaction and will be organized into two parts. In the first part, the researcher will approach the subject with open-ended questions in order to explore the context in which the interactions have occurred. (For example: What are the antecedents of the interactions? What are the circumstances that prompted the initiation of the interaction? What has happened during and after the interactions?) This part of the interview aims to reconstruct as much as possible the context in which the user-intermediary interactions have occurred.

The second part of the interview will be semi-structured and will aim to check aspects that the literature or previous data analysis suggests are important in understanding user-intermediary interactions.

The objectives for interviewing intermediaries are similar to those for interviewing users. However, interviews with intermediaries may refer to multiple interactions with various users. The interview with intermediaries will complement or probe what will be observed, while interviews with users will be more comprehensive, as less contextual information will be known in advance.

The research will be conducted in three stages: preliminary, implementation and final stages as explained below.

Preliminary Stage

This stage comprises activities that precede the fieldwork. The researcher will review the literature and then select and contact the information-provision service that will be used as the study setting.

Implementation Stage

This study takes a bottom-up approach, and is aligned with naturalistic and grounded theory methodologies for collecting and analyzing data. An iterative process characterizes the implementation stage, which involves emergent design, purposive sampling, data collection, and inductive analysis (Fig. 1).

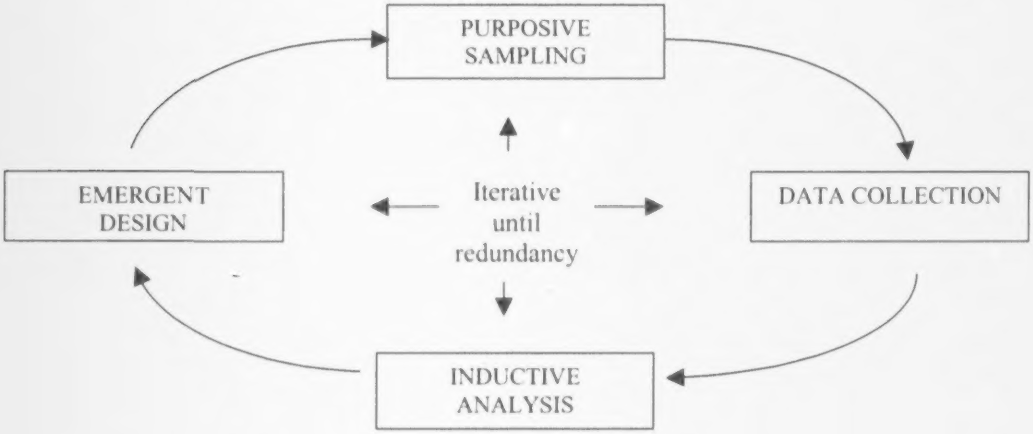

Fig. 1: Implementation stage (adapted from Lincoln & Guba, 1985, p. 188).

Data analysis is not seen as a separate stage of the research; rather it is an activity that informs data collection. It will be based on the constant-comparative method (Glaser & Strauss, 1967). It will involve coding (conceptual labeling and discovery of categories) and identification of the relationships among codes. Analysis will also generate a working hypothesis that will, as much as possible, be verified in the course of the study.

The emergent design refers to evolving decisions during the research process of what information to look for next and where to gather it. The purposive sampling is a reflection of the emergent design and guides the following step of data collection in the iterative process. The process stops when saturation is reached for those concepts and categories are considered relevant in describing the phenomenon.

Final Stage

The final stage of the research comprises reviewing and integrating findings in a case report. Drafts of preliminary results will be submitted to the respondents for feedback. The researcher will negotiate outcomes with respondents at two levels: individual and group. At the individual level the researcher will conduct a follow-up interview to probe unclear information, if necessary. Checking will be done in more advanced stages as well, when the researcher integrates the collected data and produces preliminary results. These results will be posted in a discussion list in order to receive feedback from the respondents.

Limitations of the Study

1. The research findings may not be fully transferable to other service environments.
2. Data elicitation will occur, in many cases, after user-intermediary interactions are completed as opposed to data elicitation occurring as the interaction proceeds. This may restrict the validity of the information gathered because it will be based on the respondents' recall of the situations.
3. Respondents participating in the interviews are those who have had experience with digital interactions. So, findings related to factors that may inhibit the use of this medium would be restricted, since respondents who have decided not to use such a mode of interaction would not be participating in the study.

Contributions of the Study

At the research level, this study will:

- augment our understanding of digital intermediation
- provide models for future studies of digital intermediation
- investigate both sides of the communication (users and intermediaries) unlike most studies.

At the pragmatic level, this study will:

- provide helpful information to improve existing information-provision services that operate through the Internet, since the study investigates factors that may facilitate, maintain or inhibit digital user-intermediary interactions
- provide insights for training programs for intermediaries planning to work at networked information-provision services using a text-based medium
- inform organizations that are planning to implement electronic reference services or other similar kind of services, such as help desks
- provide insights into designing systems to manage electronic information-provision services.

Notes

[1] The term *digital* in the context of this paper implies an asynchronous text-based computer-mediated medium for communication, such as e-mail or a Web form.

[2] AskA services are "question and answer services that seek to fulfill the reference needs of the K-12 education community" (Lankes, 1998, p.9). They are digital reference services that serve a particular community.

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Becoming All Things to All People:
Digital Reference at the Kentucky Center for School Safety Clearinghouse

Doris D. Settles
Kentucky Center for School Safety

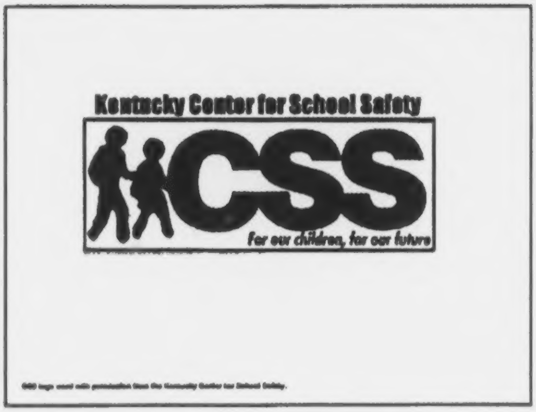
Presentation

Introduction

Brought into being by state legislation in 1998, the Kentucky Center for School Safety (CSS) has as its charge to be the central state contact point for safe school issues and information. We are a collaborative effort housed at four disparate (and distant) institutions; therefore, technology is our method of choice for communicating with each other, our audiences, and for providing information resources. The clearinghouse, housed at the University of Kentucky, functions as the information management resource for the CSS and for the state concerning our work. Our Web site, www.kysafeschools.org, was one of the first things created by center staff and continues to be our centerpiece.

Our audience is truly endless, and what we see and do runs the gamut. Questions from graduate students in New Zealand and school administrators in Monkey's Paw, Kentucky are researched and answered simultaneously. Our Web site provides a means of communication for our board of directors and management team, as well as opportunities for school districts to become aware of grant opportunities to fund innovative projects. The home page features current work of the CSS as well as up-to-date articles from regional and national publications. We are working on Web lectures for post-secondary faculty and a Web-based course on school safety issues. An online mailing list, training calendar, special events calendar, and resource library databases provide instant access to information necessary to do our jobs or to provide information to our audiences. The possibilities for providing reference material are endless…and often the work seems that way as well.

Like any multi-faceted virtual reference provider, the Kentucky Center for School Safety Clearinghouse feels pressured to offer the best technology has to offer. However, like any non-profit institution, that is frequently difficult with limited funding. Finding that balance is difficult at best, but we continue to strive toward that end.



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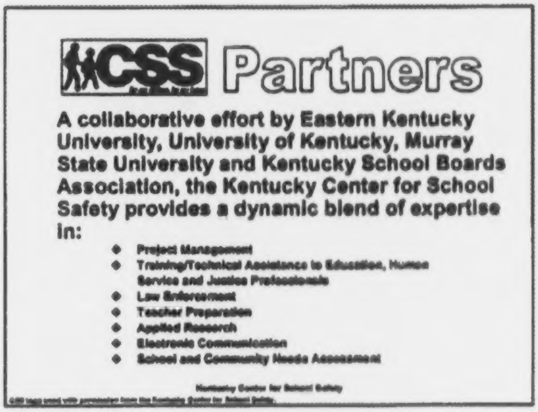

CSS Partners

A collaborative effort by Eastern Kentucky University, University of Kentucky, Murray State University and Kentucky School Boards Association, the Kentucky Center for School Safety provides a dynamic blend of expertise in:

- Project Management
- Training/Technical Assistance to Education, Human Service and Justice Professionals
- Law Enforcement
- Teacher Preparation
- Applied Research
- Electronic Communication
- School and Community Needs Assessment

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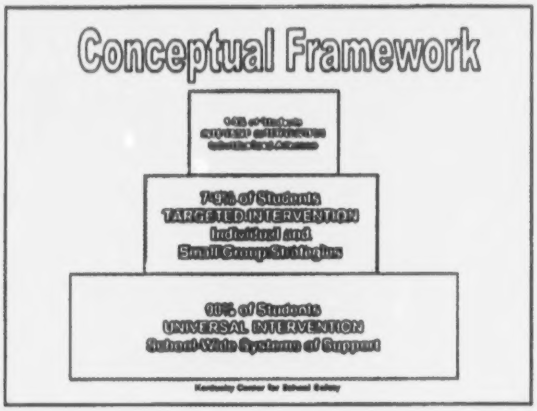

Conceptual Framework

1-3% of Students
[illegible]
[illegible]

7-9% of Students
TARGETED INTERVENTION
Individual and
Small Group Strategies

90% of Students
UNIVERSAL INTERVENTION
School-Wide Systems of Support

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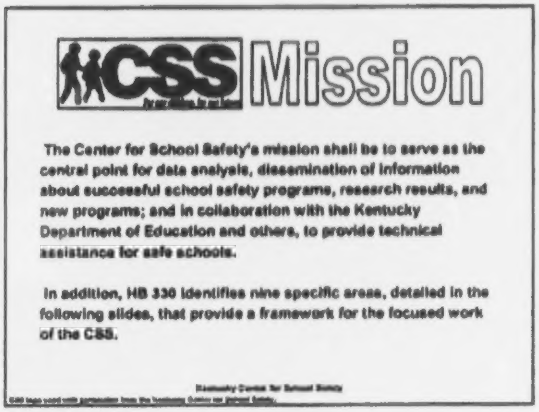

CSS Mission

The Center for School Safety's mission shall be to serve as the central point for data analysis, dissemination of information about successful school safety programs, research results, and new programs; and in collaboration with the Kentucky Department of Education and others, to provide technical assistance for safe schools.

In addition, HB 330 identifies nine specific areas, detailed in the following slides, that provide a framework for the focused work of the CSS.

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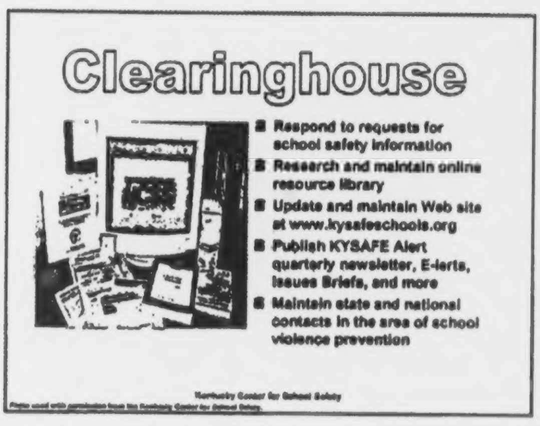

Clearinghouse

- Respond to requests for school safety information
- Research and maintain online resource library
- Update and maintain Web site at www.kysafeschools.org
- Publish KYSAFE Alert quarterly newsletter, E-lerts, Issues Briefs, and more
- Maintain state and national contacts in the area of school violence prevention

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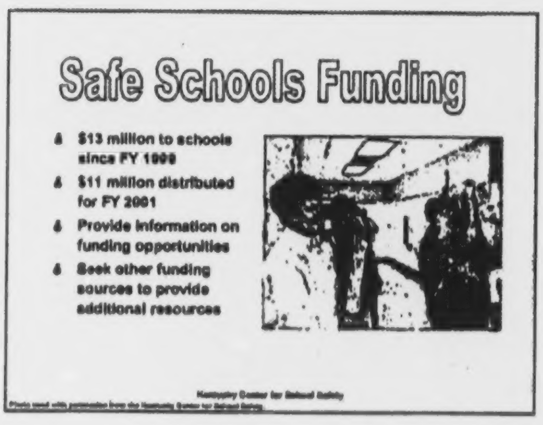

Safe Schools Funding

- $13 million to schools since FY 1999
- $11 million distributed for FY 2001
- Provide information on funding opportunities
- Seek other funding sources to provide additional resources

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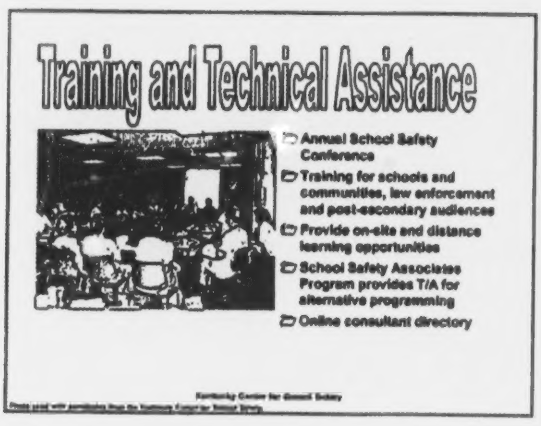

Training and Technical Assistance

- Annual School Safety Conference
- Training for schools and communities, law enforcement and post-secondary audiences
- Provide on-site and distance learning opportunities
- School Safety Associates Program provides T/A for alternative programming
- Online consultant directory

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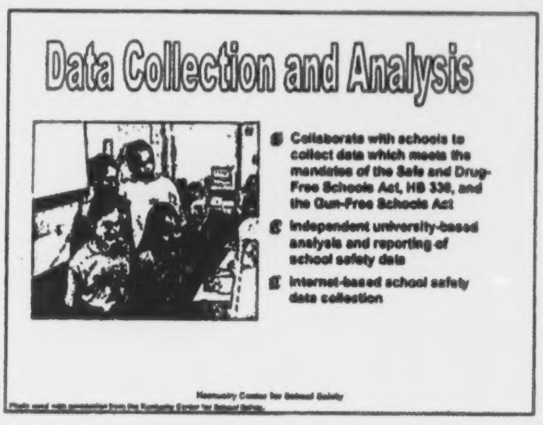

Data Collection and Analysis

- Collaborate with schools to collect data which meets the mandates of the Safe and Drug-Free Schools Act, HB 330, and the Gun-Free Schools Act
- Independent university-based analysis and reporting of school safety data
- Internet-based school safety data collection

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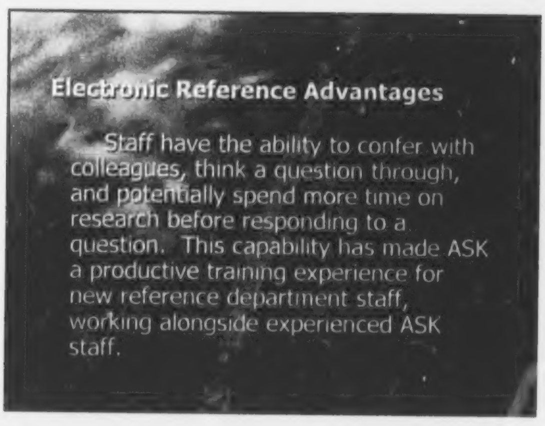
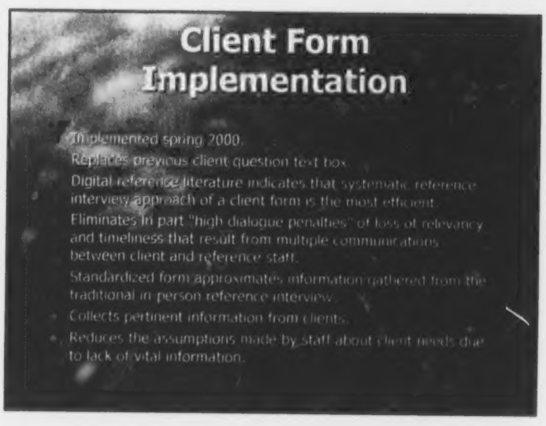


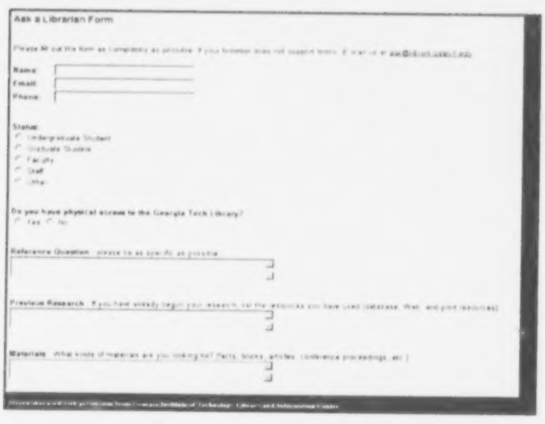
Electronic Reference Advantages

Staff have the ability to confer with colleagues, think a question through, and potentially spend more time on research before responding to a question. This capability has made ASK a productive training experience for new reference department staff, working alongside experienced ASK staff.



Client Form Implementation

- Implemented spring 2000.
- Replaces previous client question text box.
- Digital reference literature indicates that systematic reference interview approach of a client form is the most efficient.
- Eliminates in part "high dialogue penalties" of loss of relevancy and timeliness that result from multiple communications between client and reference staff.
- Standardized form approximates information gathered from the traditional in person reference interview.
- Collects pertinent information from clients.
- Reduces the assumptions made by staff about client needs due to lack of vital information.



Ask a Librarian Form

Name:
Email:
Phone:

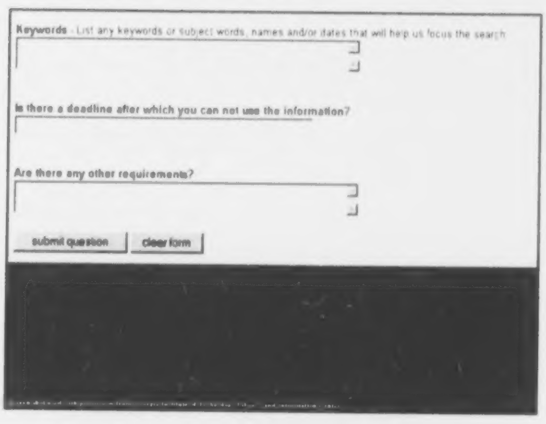
Status:
○ Undergraduate Student
○ Graduate Student
○ Faculty
○ Staff
○ Other

Do you have physical access to the Georgia Tech Library?
○ Yes ○ No

Reference Question - please be as specific as possible

Previous Research - If you have already begun your research, list the resources you have used (database, Web, and print resources)

Materials - What kinds of materials are you looking for? (facts, books, articles, conference proceedings, etc.)



Keywords - List any keywords or subject words, names and/or dates that will help us focus the search

Is there a deadline after which you can not use the information?

Are there any other requirements?

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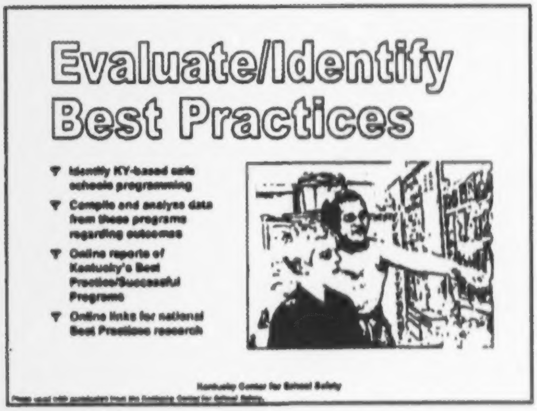

Evaluate/Identify Best Practices

- Identify KY-based safe schools programming
- Compile and analyze data from these programs regarding outcomes
- Online reports of Kentucky's Best Practice/Successful Programs
- Online links for national Best Practices research

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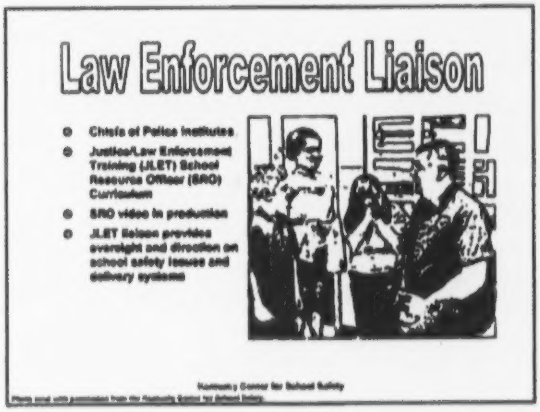

Law Enforcement Liaison

- Chiefs of Police Institutes
- Justice/Law Enforcement Training (JLET) School Resource Officer (SRO) Curriculum
- SRO video in production
- JLET liaison provides oversight and direction on school safety issues and delivery systems

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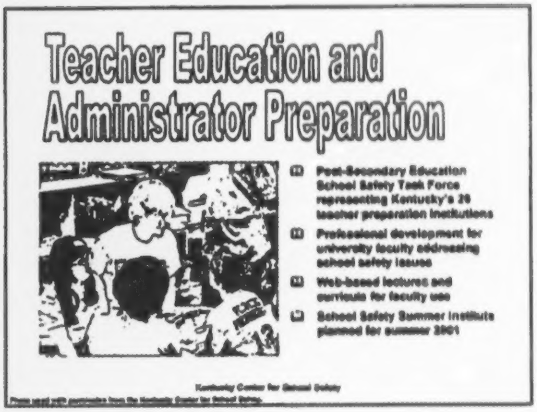

Teacher Education and Administrator Preparation

- Post-Secondary Education School Safety Task Force representing Kentucky's 26 teacher preparation institutions
- Professional development for university faculty addressing school safety issues
- Web-based lectures and curricula for faculty use
- School Safety Summer Institute planned for summer 2001

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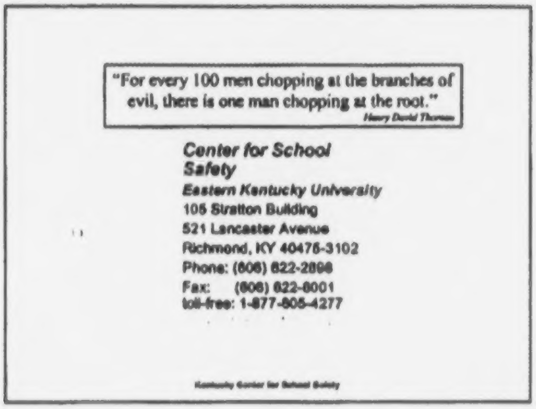

> "For every 100 men chopping at the branches of evil, there is one man chopping at the root."
>
> *Henry David Thoreau*

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How Many Trees in a Forest:
Creating Digital Reference Services in Agriculture

Melanie A. Gardner, National Agricultural Library
JoAnn DeVries, University of Minnesota
Cindy Kaag, Washington State University

Abstract

The Agriculture Network Information Center (AgNIC) is an Internet-based, distributed system for quality agricultural information and resources. Currently, there are more than 35 partners, and each partner offers expert informational coverage of a "narrow slice" of agriculture. This distributed information system takes a discipline-oriented approach to bringing agricultural and related information and multimedia resources to the general public, the academic community, the business sector, and government users. Some of the goals of AgNIC include: identifying and evaluating major collections of electronic information and resources; facilitating access to and retrieval from the most useful of these resources; providing access to subject area experts and online reference services; leveraging the distributed character of the Internet to ensure that workload and responsibility are shared equally; and facilitating collaboration and communication among those within the broad agricultural community. Reference service is a hallmark feature of each AgNIC site. The authors provide a brief overview of AgNIC and two case studies. They describe the steps taken by the University of Minnesota in preparation to move from providing reference to the campus and state to the "world" and discuss efforts by Washington State University to build a digital reference collection.

AgNIC In-Brief

The Agriculture Network Information Center (AgNIC) is an Internet-based distributed system for access to quality agricultural information and resources managed by an alliance of partners (www.agnic.org). The U.S. Department of Agriculture's National Agricultural Library (NAL), in collaboration with several land-grant institutions and others, realized about ten years ago that cooperation and resource sharing among institutions with common interests in agriculture are essential to NAL's mission and to enhancing access to agricultural information. Shared resources, subject expertise, and online reference are key to the success of AgNIC.

AgNIC grew out of a need to redefine the role of libraries and other information providers in the new electronic environment. AgNIC partners share a commitment to work collaboratively to provide access to quality resources in electronic form, including existing files, newly created resources, and statistical data.

Following the idea that AgNIC's core vision is to provide access to quality information, online reference (specifically, distributed reference) became an important element of AgNIC services. Following a pilot among seven AgNIC subject sites (in academic year 1996-1997), partners agreed that the user response was reasonable and manageable.

The network has experienced mixed success. After the pilot, and a brief period of offering online reference, one AgNIC subject site decided not to offer the "ask a question" option. Just recently, bowing to pressure from the alliance, the site added the option on their front page. In a two-day period, they received over 400 questions. They, again, decided to pull the option from the site.

In a cursory analysis of the problem, there were easily explained reasons why so many questions were received:

1. The page was developed for professionals in that particular field of research.
2. The subject is extremely "consumer-oriented," making it a prime target for non-professionals and consumers.
3. The site was developed and maintained by subject/information specialists, not librarians.

A re-evaluation of the page structure resulted in a site redesign that decreased volume and met consumers' needs.

All but two AgNIC subject sites are maintained by librarians or have input from librarians regarding structure, development, and selection of resources. AgNIC partners agree that most users are served by sites that are well organized, built for a broad base of users, and that include frequently asked questions (FAQs), frequently used resources (FURs) and other general information. The average number of questions to a subject typically ranges from 15 to 40 per month.

Many prospective AgNIC partners hesitate to join the alliance because they fear they will be overwhelmed by the number of questions. To complicate matters, some land-grant university libraries have a narrower user group than other AgNIC members.

In keeping with the "globalization" of nearly every program, most land-grant universities are expanding their mission to serve the global community, and more are expressing an interest in joining AgNIC.

The University of Minnesota will now discuss their efforts to make this transition in developing an online reference component of their subject site.

University of Minnesota Goes Global

The cooperative and distributive nature of the AgNIC Alliance encourages a high level of participation from land-grant institutions. It would be overwhelming and impossible for a land-grant library to expect its Web site to cover all of the agricultural and related sciences and to answer any question from any person. On the other hand, a Web site that specifically concentrates on a "narrow slice" of the subject and is supported by an established collection, program and research strengths, and a national reputation, is exciting and manageable.

The University of Minnesota has two AgNIC sites. Both sites are developed around unique features that are the foundations of the sites. The Forestry AgNIC (forestry.lib.umn.edu/agnic) includes four databases that were compiled and published for more than 20 years by forestry librarian, Jean Albrecht. Foresters looking for material not covered in the major agricultural databases use the Social Sciences in Forestry; Trail Planning, Construction and Maintenance; Tropical Forest Conservation and Development; and Urban Forestry databases. The Agricultural and Applied Economics AgNIC (agecon.lib.umn.edu/AgNIC/index.html) provides searchable, full-text working papers from university departments of applied economics nationwide. AgEcon Search is sponsored by the American Agricultural Economics Association, the USDA Economic Research Service, and the Farm Foundation. It is the creation of Patricia Rodkewich, agricultural and applied economics librarian. Economists traditionally rely on working papers to communicate current research.

Online reference services are provided in the selected subject areas included in an AgNIC subject site. The sites include access to electronic resources available from their collections and links to other relevant resources available on the Internet. Many sites identify recommended frequently used resources and post frequently asked questions. These resources should provide the answer for most, if not all, questions that users will have. If there are unanswered questions, a librarian will personally assist a request for information.

The differences between online reference and traditional reference desk service are not always obvious at first but become apparent upon reflection; online reference requires adjustments and experimentation on the part of a librarian. There is no opportunity to observe subtle inflections of the patron's voice or body language or to ask probing questions. Therefore, the librarian alone determines how much or how little information is needed. Since speed is valued in this environment, the librarian feels the urgency to complete a response quickly, though it actually takes more time and effort to compose a written response than it does to reply verbally. Perhaps the most striking difference is the anonymous nature of the requests. Unless the site's form collects user information, the librarian has no context for understanding the request. Feedback about the usefulness of the answer is minimal online as compared with traditional reference interactions (walk-in and telephone).

A properly designed, well-organized structure of carefully selected resources will ensure that users can easily locate needed information and limit the number of requests for additional information. Web site development and online reference are time-consuming and high maintenance services. Reference workflow has shifted dramatically from blocks of time at the reference desk to development of Web-based reference. Web users expect service twenty-four hours a day, seven days a week. Interestingly, many queries are in the form of comments praising the usefulness of the databases or suggesting new links or recommending improvements in format. An important factor to consider when conceptualizing a Web site is the anticipation of the broadest possible scope of users. Creating layers of resources is a way to accommodate the breadth of user requests.

Anticipation of the broadest scope of users is a new direction for most land-grant libraries. However, with a re-emphasis on the outreach mission at the University of Minnesota, the broad scope of users complements institutional goals. The university actively initiates partnerships with business, industry, undergraduate education, rural communities, K-12 education, and international research programs. The university faculty and students work and live worldwide.

Collection Development for Virtual Reference

Washington State University (WSU) concentrates on tree fruit as its primary topic of agriculture. Washington State is a major producer of tree fruit, providing 47% of America's total annual output of apples and cherries and 42% of its pear output. WSU has several extension sites dealing with tree fruit and produces numerous publications on a yearly basis. Building on this position of strength, WSU undertook to develop the AgNIC site for tree fruit.

If the subject coverage of an individual AgNIC site is narrow, the intended audience is certainly broad, comprised of the general public, the academic community, businesses, and government agencies. There are substantial implications for developing a reference collection to serve many different groups. We could legitimately have links ranging from WSU's own popular "Ask Dr. Universe" science site for kids to extension publications to economic indicators to federal regulations governing the number of port-a-potties provided to migrant field workers. The following section discusses our efforts to build an electronic reference collection on tree fruit to serve a diverse clientele.

Goals

Three of AgNIC's goals are particularly pertinent to providing reference information. We aim to:

- Identify and evaluate major collections of electronic information and resources,
- Facilitate access to those collections,
- Provide access to experts in the field and reference services online.

Collection Development for the Site

Traditional collection development is the basis for online collection development. The tools have changed, but the concepts remain the same. Librarians add value to resources by locating, evaluating, and providing access. The process is incremental:

- reference
- reference sources
- electronic reference sources
- online electronic reference sources

Several library publications now provide reviews of sites, both free and for a fee. Examples are "Internet Reviews" in *College and Research Libraries News*, "Databases" in *Reference and User Services Quarterly*, and *Choice*, which integrates print and electronic media. Subject-specific journals have been slower to review electronic resources; we have yet to find any journals that regularly review Web sites. Consequently, our librarians search for and evaluate sites.

So, what is different about selecting electronic tools for virtual reference users, or for in-house use in answering virtual reference questions? An obvious issue is access: can the user access a particular tool? Is licensing involved, or are there hardware or software restrictions? The selector must look at these issues in addition to the usual evaluation of authority, timeliness, reliability, usability, depth, breadth, etc. Is the Web site easily navigated? Are the results accurate and consistent? Can the user easily exit the site? Institutional policies can guide decisions.

Searching for virtual resources requires thinking globally. Librarians cannot rely on a few library review sources or a book approval vendor. There is no substitute for actively searching for resources, which means spending time online trying different strategies in different search engines. The same search in Google, Ask Jeeves and AltaVista will result in very different results. For example, I recently ran a search for "Yellowstone science" and checked a dozen engines for relevancy on scientific issues in the Greater Yellowstone Ecosystem. Total retrieval and actual usefulness of the first 100 hits from each overlap by no more than 20%. In providing virtual reference services and collections, librarians sort the good from the bad. My alma mater, the other UW in Wisconsin, embraces the motto, "fearless sifting and winnowing"; that's what collection development is, especially in the face of the flood of possible electronic resources. Select the few from the many and make those accessible.

Acquiring

This is where you need to be a cross between "Miss Manners," an accountant, and a lawyer. Once you have located resources you want to add to your own virtual reference site, you have to be aware that not everything is free for the linking. You have an obligation to make sure that you are not abusing the Internet. Unless a site is identified as freely accessible, professional courtesy requires you contact the provider to request permission to build a link into your site. I recently received a flyer for a wonderful resource produced by our neighbor institution, the University of Idaho, in print and CD-ROM. Since WSU comprises several campuses, research stations, and extended degree locations, I called to check on licensing for mounting the CD-ROM on our server so that all our patrons could access it. I was told we could simply catalog their Web site into our online catalog, so users would always have access to the latest information and updates at no charge. Of course, this is a best-case scenario.

Free sites are likely to be provided by academic institutions, government agencies, and businesses selling tangible products. Businesses selling data – bibliographic, economic, and statistical – will not appreciate libraries providing links to their sites from a single subscription to the world in general. You will need to negotiate licensing if you want to add such sites to your virtual reference collection, whether you are dealing with something as far-flung as an AgNIC site or with your own local reference collection. Can you afford a license which will provide access to distributed user? Or will you have to make do with a single-station license that you can use in answering reference questions? Licensing and lawyering have become a significant part of contemporary collection development and require a great deal of attention.

Cataloging

Organizing a virtual reference collection into sub-topics is in a sense cataloging in and of itself. If you are going to provide a search engine for your site, you will need to be sure you allow searching on author, publisher, subject, and keyword information, as well as the title.

Real problems occur when librarians list electronic resources, onsite and off, in the library catalog itself. All librarians are in some sense reference librarians: we're good at finding things, and we help others find things. We generally want that "finding" to be an easy process, and therefore we not only select and acquire, we catalog as well. When we buy access to an online index or to a CD-ROM or an e-journal, we expect that resource to be reflected in our catalogs. But what if the resource is a free site? Is that added to the catalog? Who will check to see if the link keeps working, and fix it if it breaks? What if a former print product is now only available electronically? Do you link to the old record, wait for a new one from LC, create your own new one, or put the resource on a separate list of electronic resources? If you are going to have an effective virtual reference collection, it is important to discuss these issues and have a policy in place, or you'll be swamped with individual item questions and your catalog will be neither consistent nor helpful.

Collection Development for the Service

Reference service is so basic to our profession that we sometimes forget how it has changed and how it varies from sector to sector. In academia, we teach classes on how to use reference resources, and we are likely to take individuals on a talking tour of where we look to answer their questions. We are likely to provide users with a call number or document delivery information to pursue on their own. In a business library, the librarian usually finds the information requested, obtains any documents, and often creates a precis to go along with the packet. To support both extremes of service, the reference collection will evolve to fill the needs of the users. But what about the reference collection supporting virtual reference services?

Two main areas need to be considered: resources for the librarian answering virtual reference questions, and resources for the virtual user. Recently I received an e-mail reference question asking for information on three medical syndromes, two of which were misspelled. If this had been an in-person question, I would have taken the user to our medical reference area, showed the user how some appropriate dictionaries and encyclopedias worked, gently showing entries under the correct spellings. For a virtual user, I could not do that, nor would I offer medical advice to any user. I answered the question with short descriptions of each syndrome from a print medical dictionary, suggested checking the local library collection, and then did a Web search for reliable sites. I found good, Mayo-Clinic level information readily and included the URLs in my response.

Conclusion

Being in an information profession in the "age of information" is an exciting, stimulating, and terrifying situation. We are redefining reference services and collections daily. Virtual reality is rapidly becoming just plain reality and virtual reference collections are a basic tool of any reference service. Collection development practices have to evolve to take into account both the reference site and the reference service - and so do reference librarians.

The Electronic Information Desk: Communication Made Virtual

Jessica Albano, Adam Hall, and Lorena O'English
University of Washington Libraries

http://www.lib.washington.edu/suzref/LibQuest/

Electronic information desk services are exciting opportunities to connect library patrons who have questions about library services, policies, and other information with the answers they need. When the University of Washington Libraries switched to a "home-grown" online catalog in 1992, the innovative alliance between the library and the campus Computing and Communications (C&C) office that created the catalog system, Willow, also created a text-based comments service that allowed patrons to ask questions about the new catalog.

As Willow expanded to include locally-mounted databases, the number of questions increased. In the beginning, questions were mainly of a technical nature, and were answered equally by a library technician from the Libraries Electronic Information Program and staff from C&C. Gradually this began to change, as users became familiar with the catalog and database interface and asked questions about search strategy and their search results. Over time, questions were increasingly being referred to other library units and staff members, and LibQuest, an electronic information desk, was created (http://www.lib.washington.edu/suzref/LibQuest/). LibQuest staff implemented an extensive awareness campaign within the Libraries to make sure that all library units were aware of the service, that inquiries were referred to the correct library unit, and that they were responded to quickly and effectively.

Over the years LibQuest has evolved into a one-stop-shopping information and referral service for library patrons. The migration of the library catalog from Willow to a Web-based Innovative Interfaces catalog, the major expansion of the number of available Web-based library databases, and the implementation of the Libraries Information Gateway have been significant factors in this evolution. Patrons e-mail LibQuest directly or through "Contact Us" links on every page of the Gateway. The "LibQuest Decision Tree" diagram shows the process used to refer, respond, and archive LibQuest inquiries.

E-mailed questions are answered by LibQuest personnel or referred to the appropriate person through a network of participating library staff members. A system of tracking questions and responses ensures that all questions are answered as quickly and completely as possible. Over time, the involvement of C&C has almost totally disappeared. LibQuest is staffed by two librarians. This has meant that short-answer and general reference questions can now often be answered directly, without having to be referred to RefQuest, the Libraries e-mail reference service for UW-affiliated patrons.

A recent analysis of LibQuest inquiries over a two-month period shows that while two-thirds of LibQuest users are affiliated with the UW, many questions are received from people all over the United States, and indeed the world. The pie chart "LibQuest Users" shows a breakdown of inquiries by source over two months. The questions asked cover many topics as well. Most inquiries are referred, including many questions about circulation and library fines or questions that should be answered by a specific library unit. Increasingly questions have to do with remote access to UW-restricted databases; the implementation of a Proxy Server allowing people who do not connect to the library system through the official UW computer service to get access has been very popular, but also brings many technical questions. The pie chart "Questions by Category" shows a breakdown of the kinds of questions received over a two-month period.

In the future, LibQuest intends to fully integrate interactive Web technology to create an even more virtual information desk. Internet "chat" services, that allow real-time communication between library staff and patrons, and elaborate Web-based services, that would allow library staff to work with users directly while both are seeing the same screen (similar to those being used by such e-commerce vendors as Lands End), are being considered.

LibQuest is an integral part of the UW library system now; this service bridges the gap between a large 21-library system with a multitude of units, divisions, and subject specialists, and the specific needs of a single user.

Enhancing Digital Reference at the Georgia Institute of Technology

Bruce Henson
Georgia Institute of Technology

Presentation

Introduction

Since October 1994, the reference department at the Georgia Institute of Technology's Library & Information Center has provided the ASK A Librarian virtual reference service to students, faculty, and staff. In the past year, three new components have been added to enhance ASK A Librarian: a client form, an ongoing assessment survey, and a FAQ database. The department also introduced Real Time Reference, a new digital reference service that uses "chat" software and enables the electronic transaction to occur synchronously.

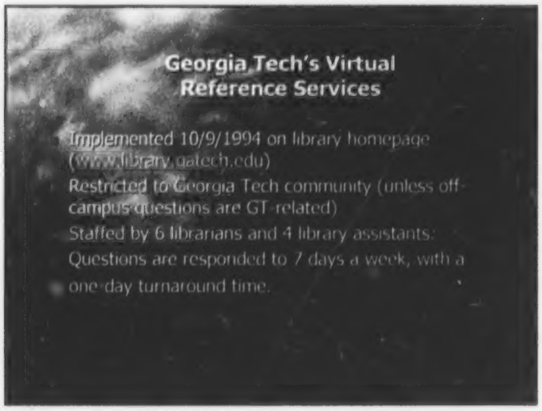
The ASK A Librarian client form was implemented in Spring 2000 and replaces a previous client question box. The form's purpose is to more closely approximate the information gathered from a traditional in-person or telephone reference interview. The standardized form collects pertinent information from clients, decreases the number of multiple communications between client and staff, and reduces incorrect assumptions made by staff. The FAQ database will be implemented in Fall 2000 and will allow keyword searching of three question fields: e-mail subject line, the question, and the response. All questions in the database are stripped of any identifying information about the client. An ongoing assessment survey was implemented in spring 1999. ASK clients are e-mailed at the end of the month in which they ask a question, with their original question included in the e-mail. They are asked to complete an anonymous Web-based survey consisting of both open-ended and closed questions.

Real Time Reference was implemented in May 1999 and uses America Online Instant Messenger "chat" software to enable clients to ask and receive answers to questions while on-line. Statistics show that usage of the service is growing. The service has been advertised in brochures sent out to all dorms, the library home page, and the closing signature in all ASK A Librarian replies.

Enhancing Digital Reference at the Georgia Institute of Technology

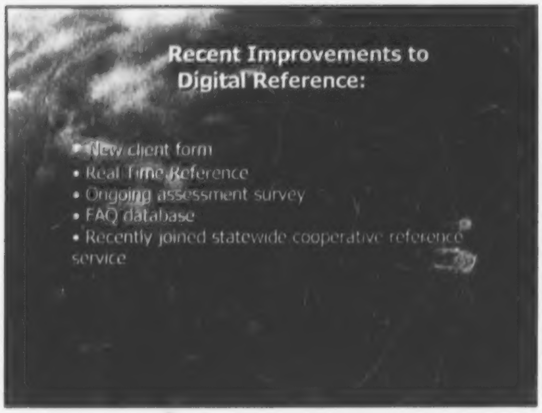
Bruce Henson

VRD Conference
October 16, 2000



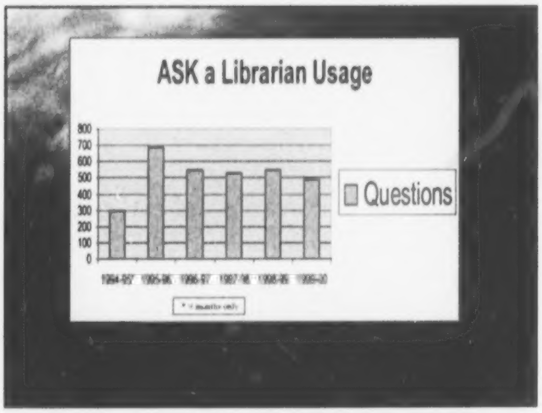
Georgia Tech's Virtual Reference Services

- Implemented 10/9/1994 on library homepage (www.library.gatech.edu)
- Restricted to Georgia Tech community (unless off-campus questions are GT-related)
- Staffed by 6 librarians and 4 library assistants:
- Questions are responded to 7 days a week, with a one-day turnaround time.



Recent Improvements to Digital Reference:

- New client form
- Real Time Reference
- Ongoing assessment survey
- FAQ database
- Recently joined statewide cooperative reference service



ASK a Librarian Usage

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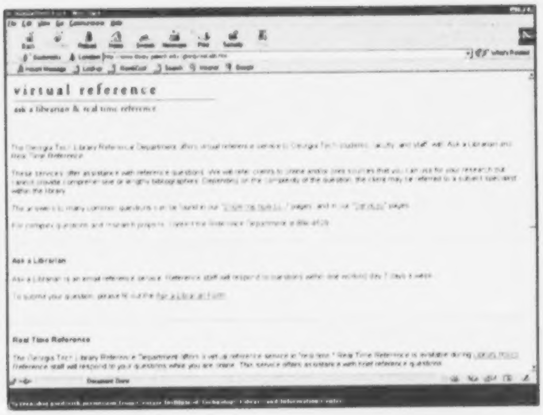

virtual reference

ask a librarian & real time reference

Ask a Librarian

Real Time Reference

Different Reference Formats

"Face to face communications and electronic communications are very different forms of communication and should not be compared. In a sense, these two forms of reference service are more complementary than they are duplicative."

Bernie Sloan, "Electronic Reference Services: Some Suggested Guidelines," *Reference & User Services Quarterly* 38 (1) p. 79

Digital Reference Communication Characteristics

	In-Person	Telephone	ASK A	Chat
Interactive	X	X		X
Verbal	X	X		
Body Language	X			
Remote		X	X	X
Written Language			X	X

Electronic Reference Challenges

- More time consuming than traditional in-person transactions because of the time taken to construct and type a comprehensive answer.
- More difficult to conduct a reference interview and to show print resources.
- Librarians may worry about written responses more than verbal ones at the desk, where there's no written record.
- Chat reference has the same time pressures of other interactive reference formats – that of responding quickly to a question while the user is online, plus typing a response. Not everyone is equally articulate or fast at the keyboard.

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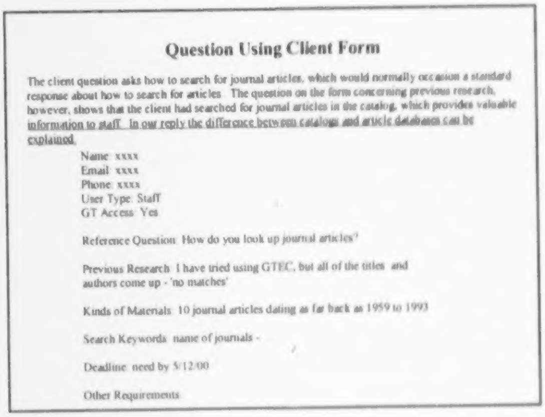


Question Using Client Form

The client question asks how to search for journal articles, which would normally occasion a standard response about how to search for articles. The question on the form concerning previous research, however, shows that the client had searched for journal articles in the catalog, which provides valuable information to staff. In our reply the difference between catalogs and article databases can be explained.

Name: xxxx
Email: xxxx
Phone: xxxx
User Type: Staff
GT Access: Yes

Reference Question: How do you look up journal articles?

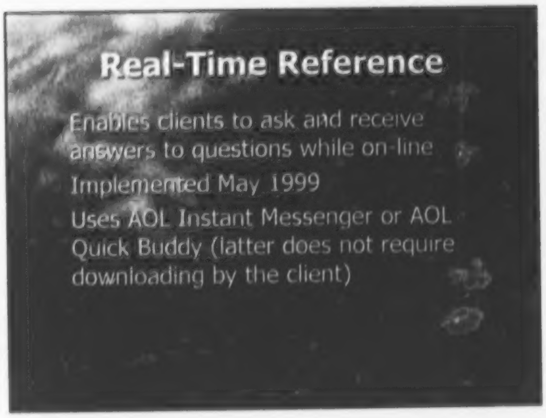
Previous Research: I have tried using GTEC, but all of the titles and authors come up - 'no matches'

Kinds of Materials: 10 journal articles dating as far back as 1959 to 1993

Search Keywords: name of journals -

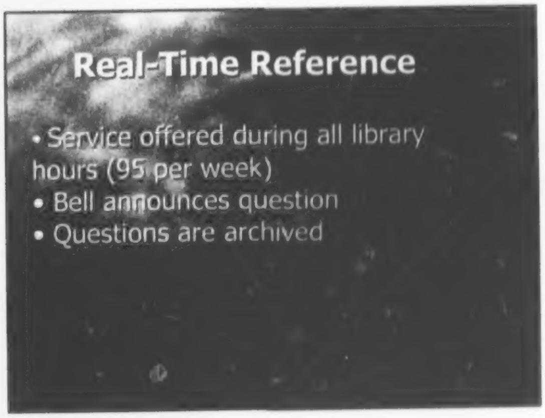
Deadline: need by 5/12/00

Other Requirements



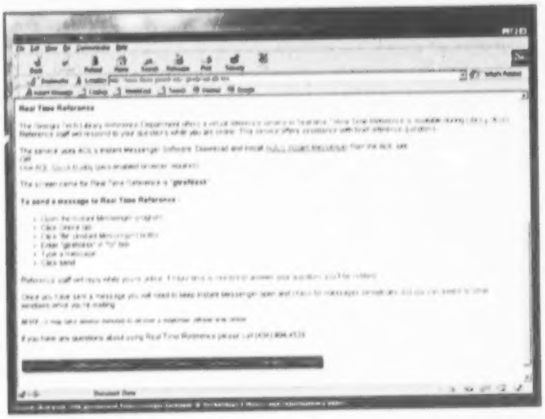
Real-Time Reference

- Enables clients to ask and receive answers to questions while on-line
- Implemented May 1999
- Uses AOL Instant Messenger or AOL Quick Buddy (latter does not require downloading by the client)



Real-Time Reference

- Service offered during all library hours (95 per week)
- Bell announces question
- Questions are archived



Real Time Reference

To send a message to Real Time Reference :

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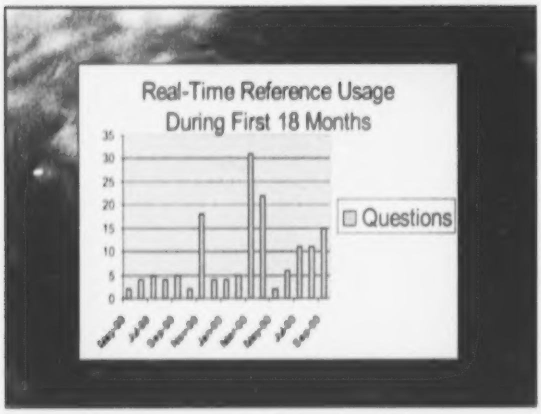
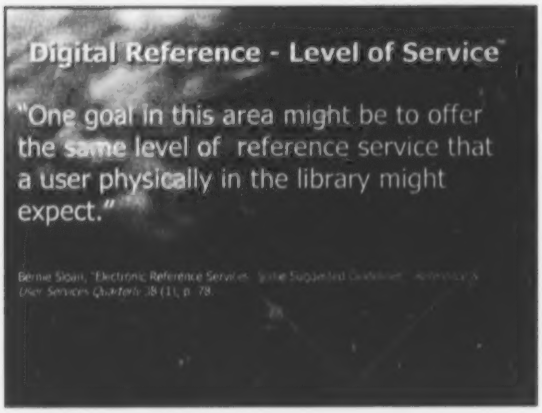
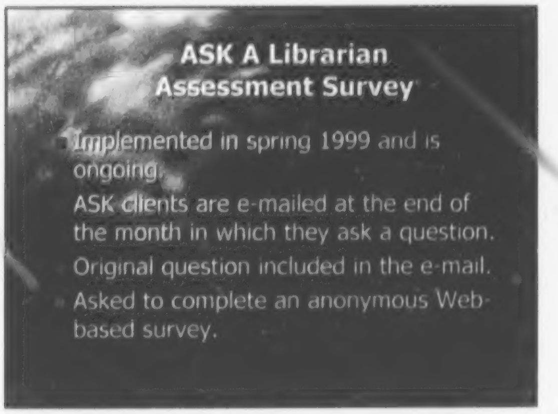




Digital Reference - Level of Service

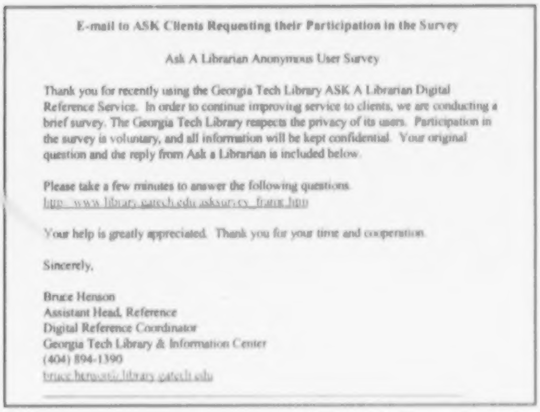
"One goal in this area might be to offer the same level of reference service that a user physically in the library might expect."

Bernie Sloan, "Electronic Reference Services: Some Suggested Guidelines," *Reference & User Services Quarterly* 38 (1), p. 78.



ASK A Librarian Assessment Survey

- Implemented in spring 1999 and is ongoing.
- ASK clients are e-mailed at the end of the month in which they ask a question.
- Original question included in the e-mail.
- Asked to complete an anonymous Web-based survey.



E-mail to ASK Clients Requesting their Participation in the Survey

Ask A Librarian Anonymous User Survey

Thank you for recently using the Georgia Tech Library ASK A Librarian Digital Reference Service. In order to continue improving service to clients, we are conducting a brief survey. The Georgia Tech Library respects the privacy of its users. Participation in the survey is voluntary, and all information will be kept confidential. Your original question and the reply from Ask a Librarian is included below.

Please take a few minutes to answer the following questions.
http://www.library.gatech.edu/asksurvey_frame.htm

Your help is greatly appreciated. Thank you for your time and cooperation.

Sincerely,

Bruce Henson
Assistant Head, Reference
Digital Reference Coordinator
Georgia Tech Library & Information Center
(404) 894-1390
bruce.henson@library.gatech.edu

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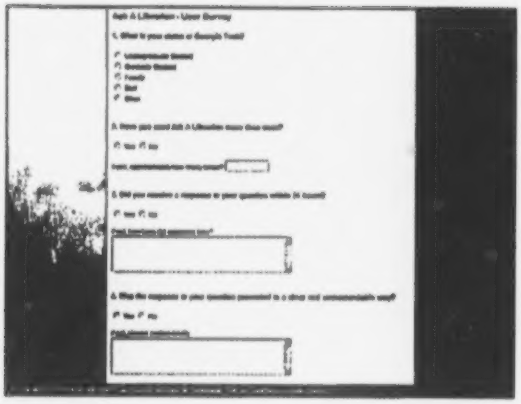

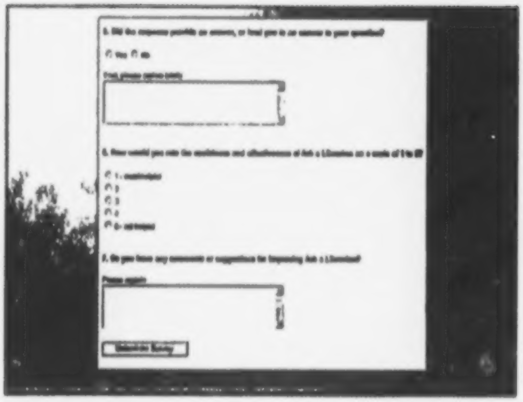

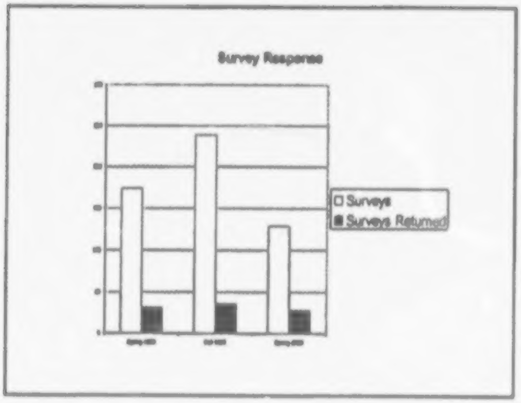

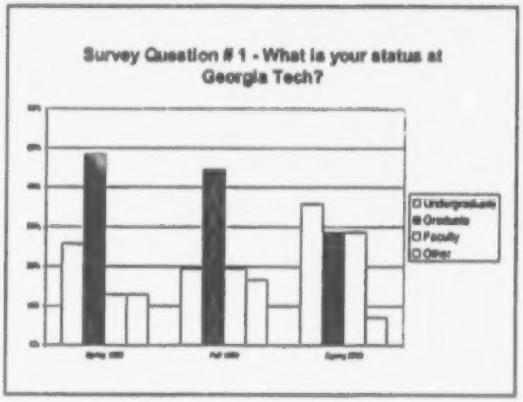

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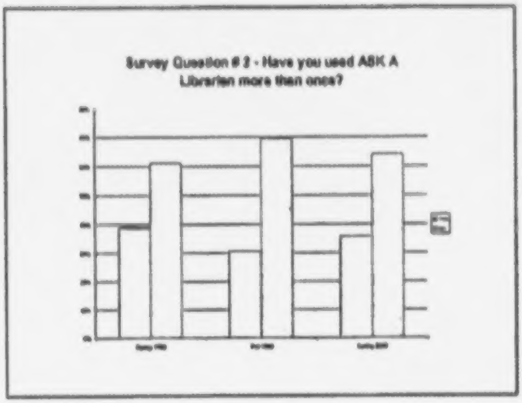
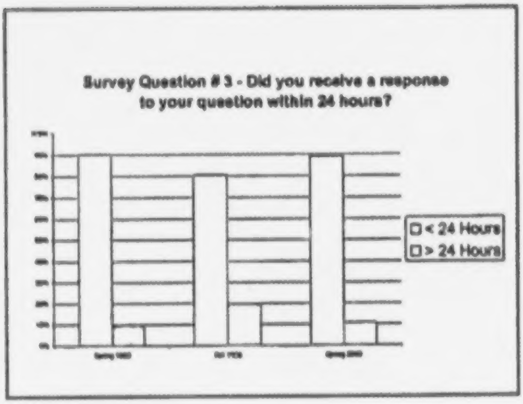
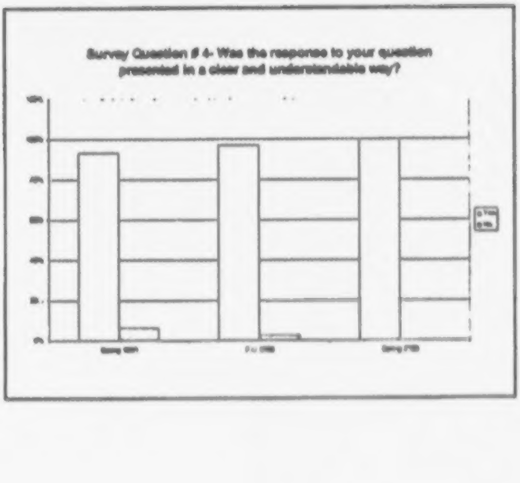
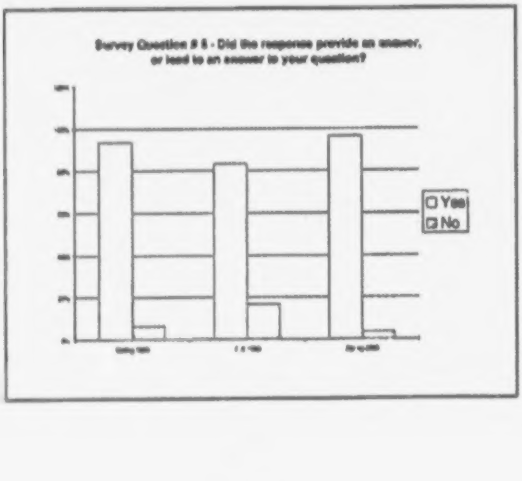
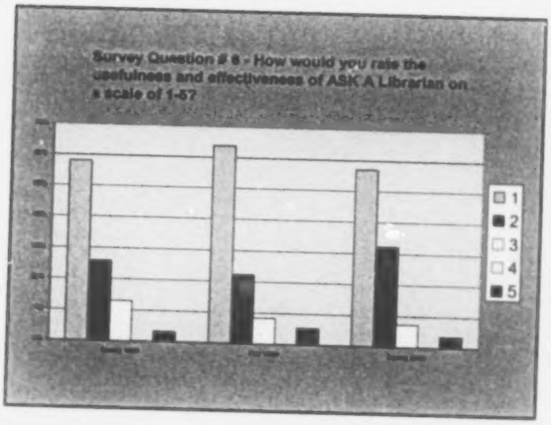

Survey Question # 2 - Have you used ASK A Librarian more then once?

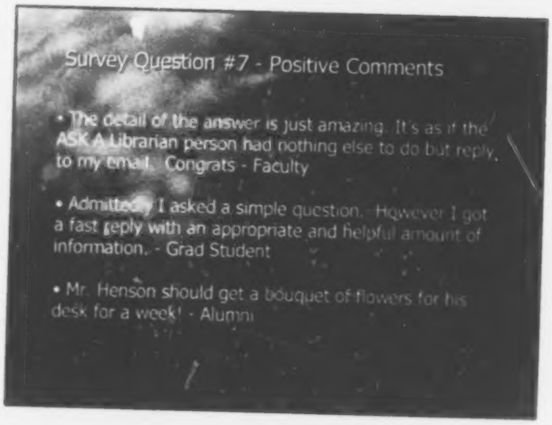

Survey Question # 3 - Did you receive a response to your question within 24 hours?


Survey Question # 4- Was the response to your question presented in a clear and understandable way?


Survey Question # 5 - Did the response provide an answer, or lead to an answer to your question?

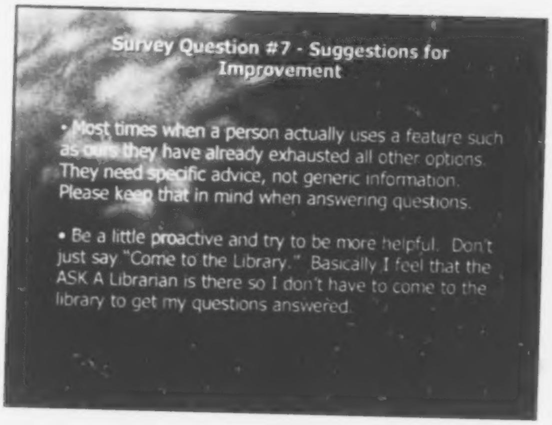


Survey Question # 6 - How would you rate the usefulness and effectiveness of ASK A Librarian on a scale of 1-5?



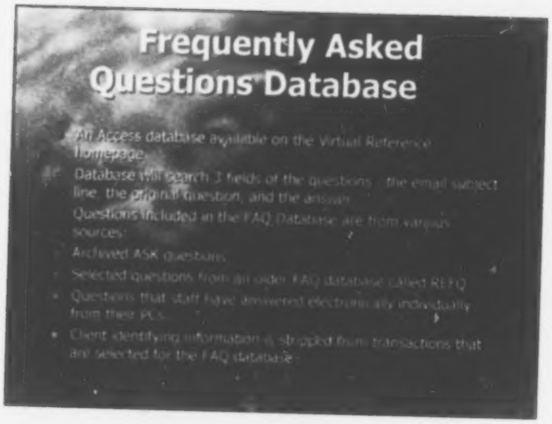
Survey Question #7 - Positive Comments

- The detail of the answer is just amazing. It's as if the ASK A Librarian person had nothing else to do but reply to my email. Congrats - Faculty
- Admittedly I asked a simple question. However I got a fast reply with an appropriate and helpful amount of information. - Grad Student
- Mr. Henson should get a bouquet of flowers for his desk for a week! - Alumni



Survey Question #7 - Suggestions for Improvement

- Most times when a person actually uses a feature such as ours they have already exhausted all other options. They need specific advice, not generic information. Please keep that in mind when answering questions.
- Be a little proactive and try to be more helpful. Don't just say "Come to the Library." Basically I feel that the ASK A Librarian is there so I don't have to come to the library to get my questions answered.



Frequently Asked Questions Database

- An Access database available on the Virtual Reference homepage
- Database will search 3 fields of the questions : the email subject line, the original question, and the answer
- Questions included in the FAQ Database are from various sources:
  - Archived ASK questions
  - Selected questions from an older FAQ database called REFQ
  - Questions that staff have answered electronically individually from their PCs
- Client identifying information is stripped from transactions that are selected for the FAQ database

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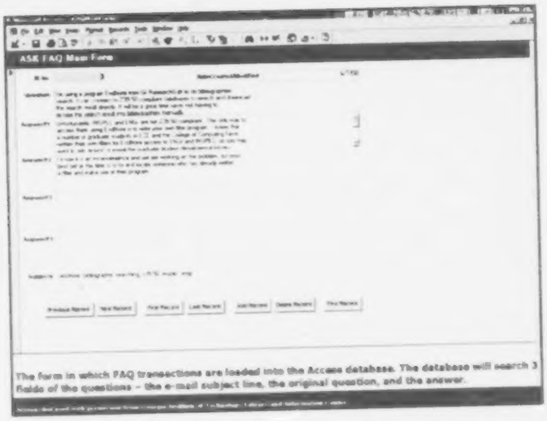
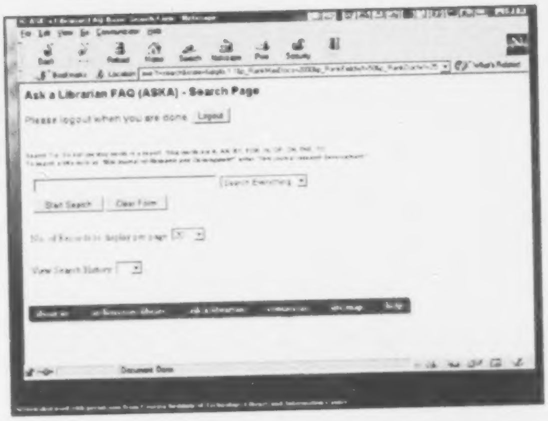


ASK FAQ Main Form

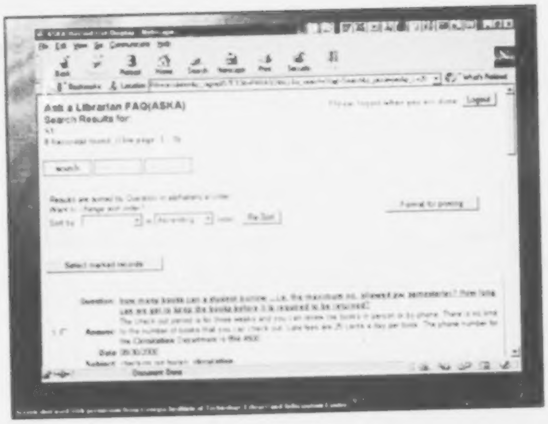
The form in which FAQ transactions are loaded into the Access database. The database will search 3 fields of the questions – the e-mail subject line, the original question, and the answer.



Ask a Librarian FAQ (ASKA) - Search Page

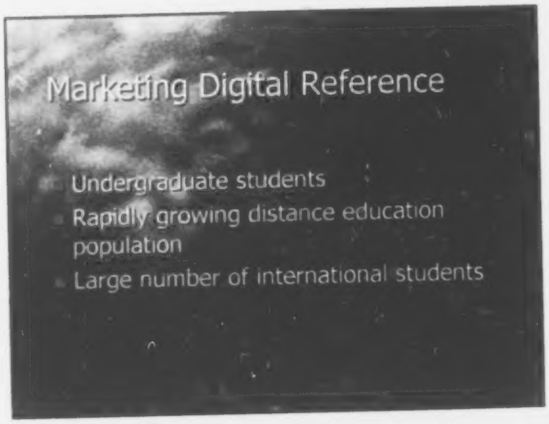
Please logout when you are done.

Logout
Search Everything
Start Search
Clear Form
View Search History
Document: Done



Ask a Librarian FAQ(ASKA)
Search Results for:

Logout
search
Format for printing
Re-Sort
Select marked records
Question:
Answer:
Date
Subject
Document: Done



Marketing Digital Reference

- Undergraduate students
- Rapidly growing distance education population
- Large number of international students

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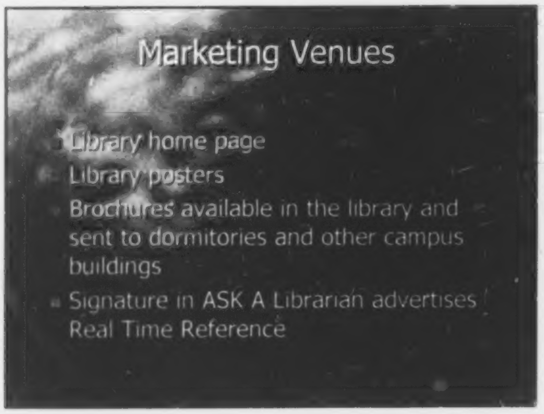


Marketing Venues

- Library home page
- Library posters
- Brochures available in the library and sent to dormitories and other campus buildings
- Signature in ASK A Librarian advertises Real Time Reference

3 exciting services from the Library and Information Center

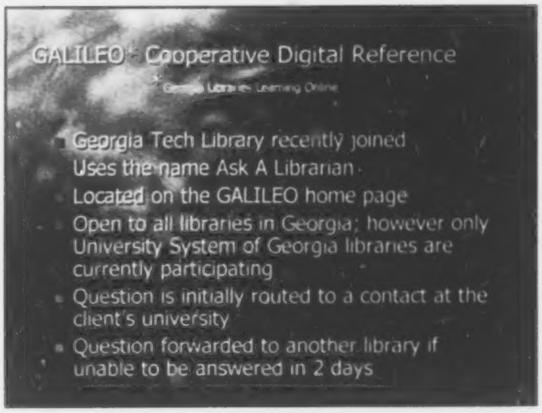
Ask a Librarian

Real Time Reference

Research Clinic

Ask a Librarian

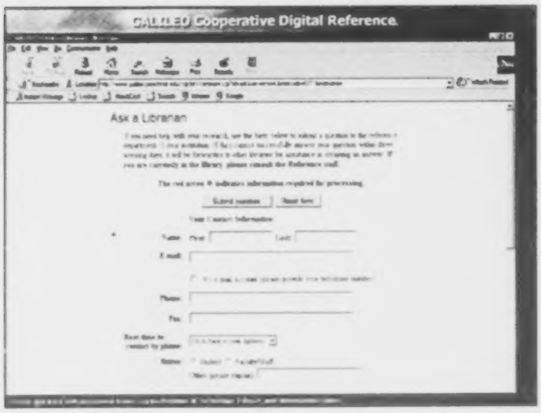
Ask a Librarian



GALILEO Cooperative Digital Reference

Georgia Libraries Learning Online

- Georgia Tech Library recently joined
- Uses the name Ask A Librarian
- Located on the GALILEO home page
- Open to all libraries in Georgia; however only University System of Georgia libraries are currently participating
- Question is initially routed to a contact at the client's university
- Question forwarded to another library if unable to be answered in 2 days



GALILEO Cooperative Digital Reference

Ask a Librarian

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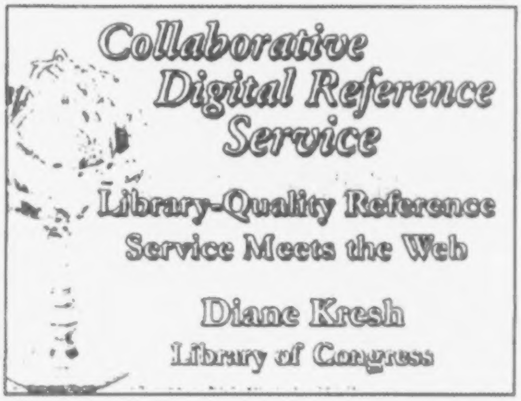
Collaborative Digital Reference Service: Library Quality Reference Service Meets the Web

Diane Kresh
Library of Congress

Presentation

Introduction

Kresh presents the most recent efforts of the Library of Congress to develop the Collaborative Digital Reference Service (CDRS), an initiative consisting of an international network of national, academic, public, and special libraries. Results of pilot phases and future plans for CDRS are discussed.

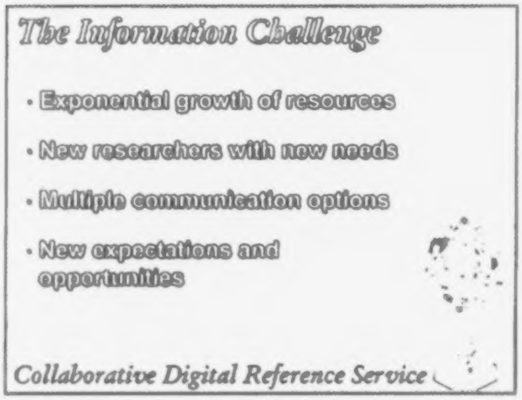


Collaborative Digital Reference Service

Library-Quality Reference Service Meets the Web

Diane Kresh

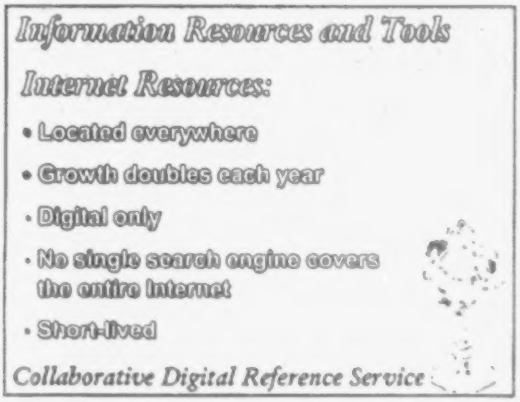
Library of Congress



The Information Challenge

- Exponential growth of resources
- New researchers with new needs
- Multiple communication options
- New expectations and opportunities

Collaborative Digital Reference Service

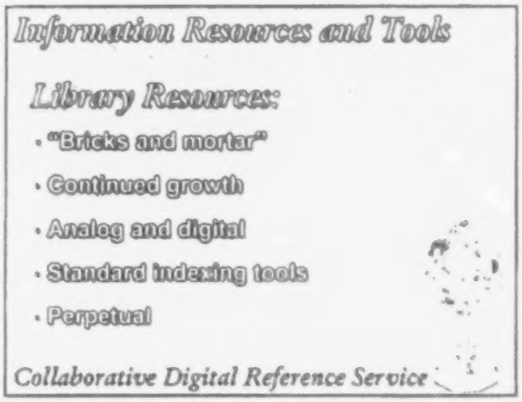


Information Resources and Tools

Internet Resources:

- Located everywhere
- Growth doubles each year
- Digital only
- No single search engine covers the entire Internet
- Short-lived

Collaborative Digital Reference Service



Information Resources and Tools

Library Resources:

- "Bricks and mortar"
- Continued growth
- Analog and digital
- Standard indexing tools
- Perpetual

Collaborative Digital Reference Service

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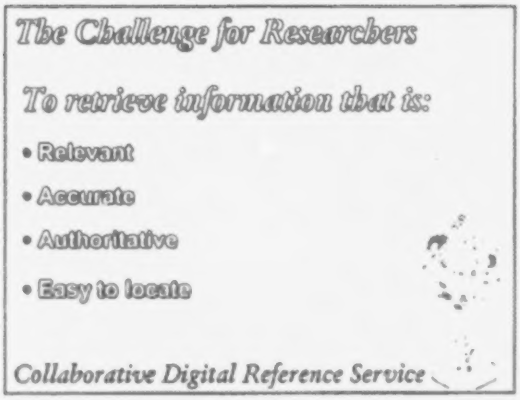
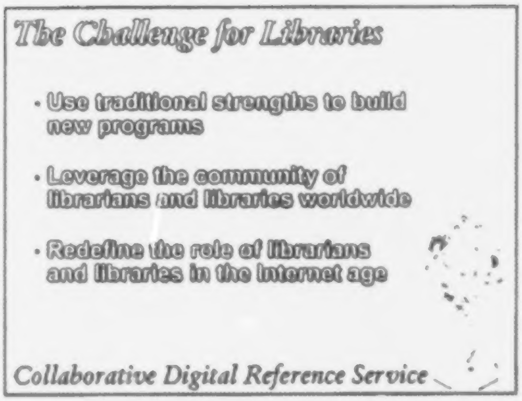


The Challenge for Researchers

To retrieve information that is:

- Relevant
- Accurate
- Authoritative
- Easy to locate

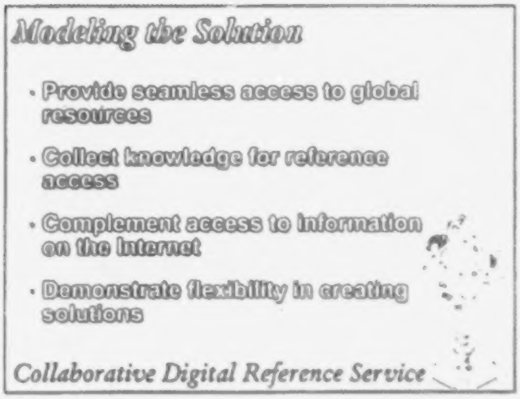
Collaborative Digital Reference Service



The Challenge for Libraries

- Use traditional strengths to build new programs
- Leverage the community of librarians and libraries worldwide
- Redefine the role of librarians and libraries in the Internet age

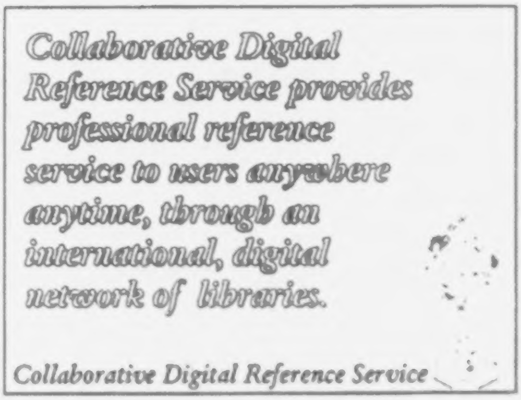
Collaborative Digital Reference Service



Modeling the Solution

- Provide seamless access to global resources
- Collect knowledge for reference access
- Complement access to information on the Internet
- Demonstrate flexibility in creating solutions

Collaborative Digital Reference Service



Collaborative Digital Reference Service provides professional reference service to users anywhere anytime, through an international, digital network of libraries.

Collaborative Digital Reference Service

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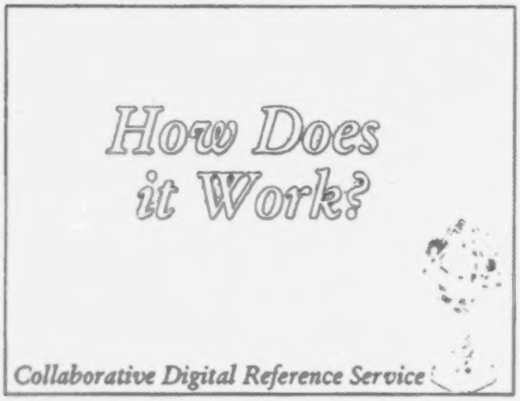
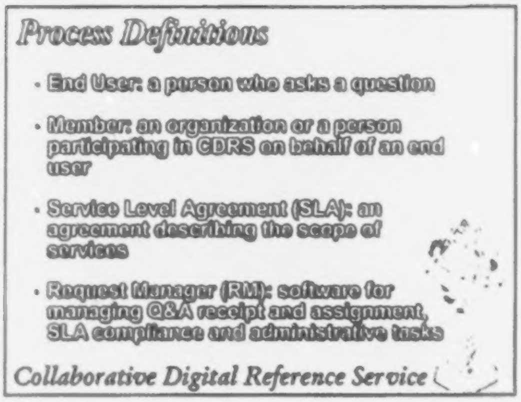


How Does it Work?

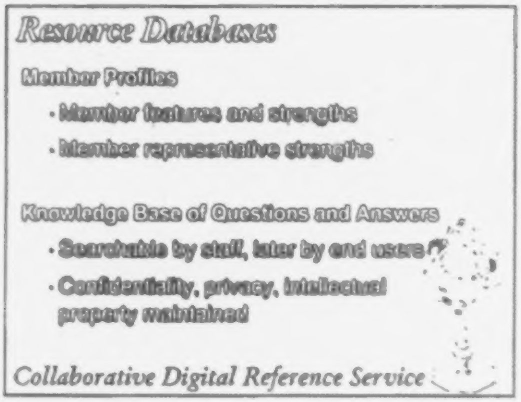
Collaborative Digital Reference Service



Process Definitions

- End User: a person who asks a question
- Member: an organization or a person participating in CDRS on behalf of an end user
- Service Level Agreement (SLA): an agreement describing the scope of services
- Request Manager (RM): software for managing Q&A receipt and assignment, SLA compliance and administrative tasks

Collaborative Digital Reference Service



Resource Databases

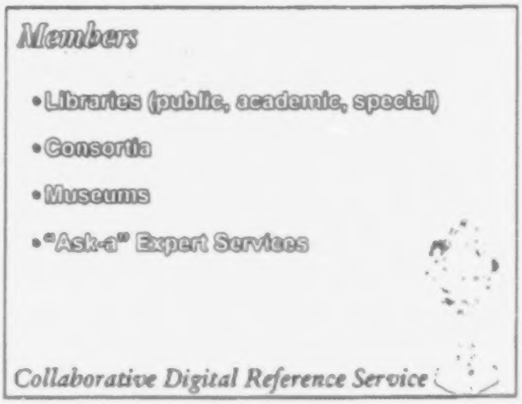
Member Profiles

- Member features and strengths
- Member representative strengths

Knowledge Base of Questions and Answers

- Searchable by staff, later by end users
- Confidentiality, privacy, intellectual property maintained

Collaborative Digital Reference Service



Members

- Libraries (public, academic, special)
- Consortia
- Museums
- "Ask-a" Expert Services

Collaborative Digital Reference Service

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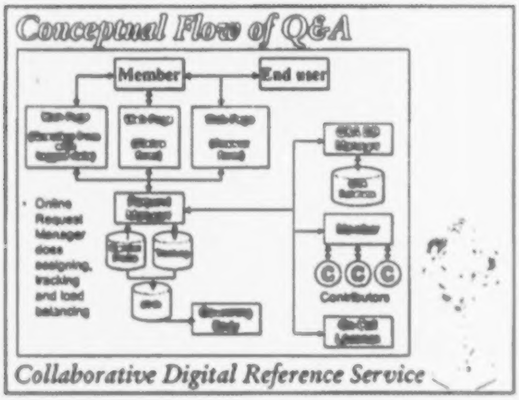
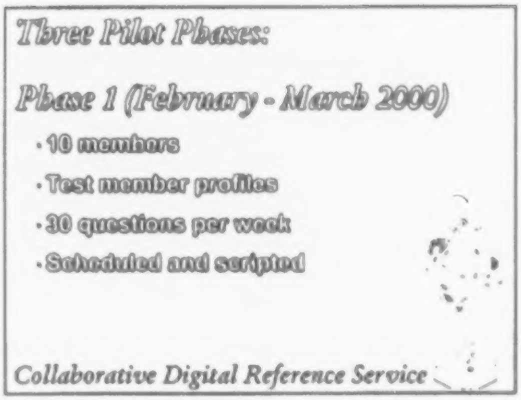


Conceptual Flow of Q&A

- Online Request Manager does assigning, tracking and load balancing

Collaborative Digital Reference Service

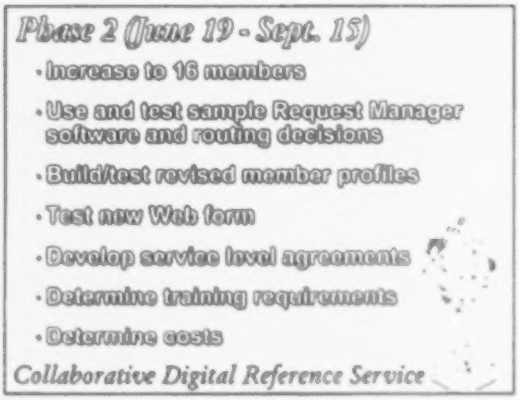


Three Pilot Phases:

Phase 1 (February - March 2000)

- 10 members
- Test member profiles
- 30 questions per week
- Scheduled and scripted

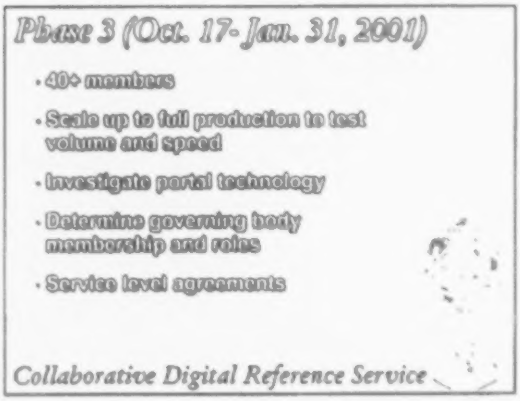
Collaborative Digital Reference Service



Phase 2 (June 19 - Sept. 15)

- Increase to 16 members
- Use and test sample Request Manager software and routing decisions
- Build/test revised member profiles
- Test new Web form
- Develop service level agreements
- Determine training requirements
- Determine costs

Collaborative Digital Reference Service



Phase 3 (Oct. 17- Jan. 31, 2001)

- 40+ members
- Scale up to full production to test volume and speed
- Investigate portal technology
- Determine governing body membership and roles
- Service level agreements

Collaborative Digital Reference Service

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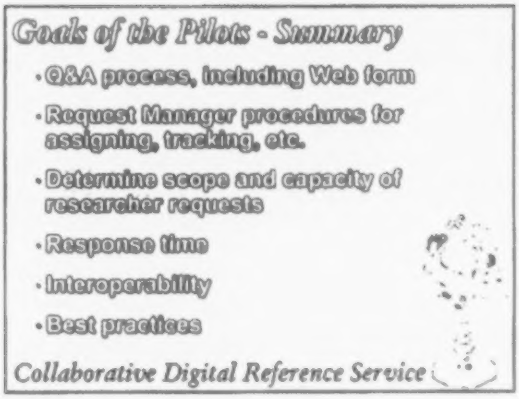
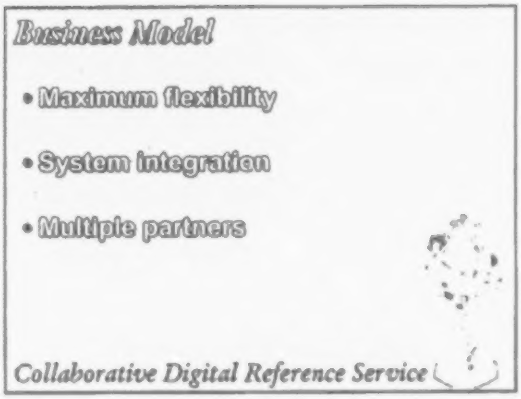


Goals of the Pilots - Summary

- Q&A process, including Web form
- Request Manager procedures for assigning, tracking, etc.
- Determine scope and capacity of researcher requests
- Response time
- Interoperability
- Best practices

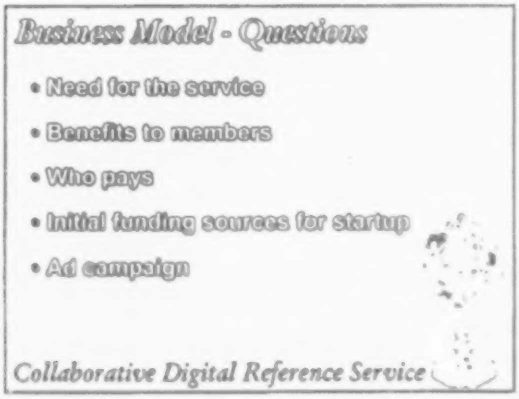
Collaborative Digital Reference Service



Business Model

- Maximum flexibility
- System integration
- Multiple partners

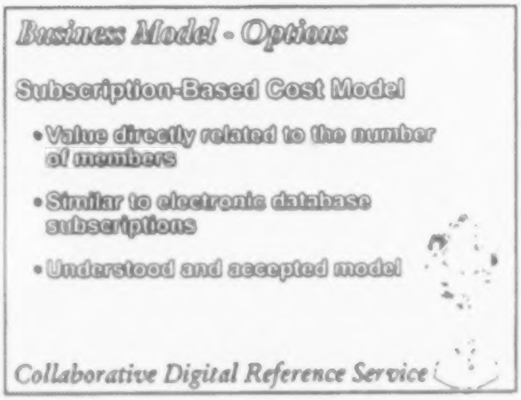
Collaborative Digital Reference Service



Business Model - Questions

- Need for the service
- Benefits to members
- Who pays
- Initial funding sources for startup
- Ad campaign

Collaborative Digital Reference Service



Business Model - Options

Subscription-Based Cost Model

- Value directly related to the number of members
- Similar to electronic database subscriptions
- Understood and accepted model

Collaborative Digital Reference Service

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Business Model - Options

Subscription-Based Cost Model

- Fees range from $100 to $2,500 per month based on size and services ordered
- Critical mass and break-even is achieved at 600 members

Collaborative Digital Reference Service

Business Model - Options

Commercially Funded Cost Model

- Libraries are losing funding, patrons, and relevancy
- Library Web sites static; no "sticky application"
- Major Internet services looking for innovative ways to reach new audiences

Collaborative Digital Reference Service

Business Model - Options

Commercially Funded Cost Model

GOALS

- Reestablish libraries as epicenters of knowledge for their communities
- Internet services implement customized community library portals

Collaborative Digital Reference Service

The Solution...

Commercially
Funded
Model
=
PORTALS

Collaborative Digital Reference Service

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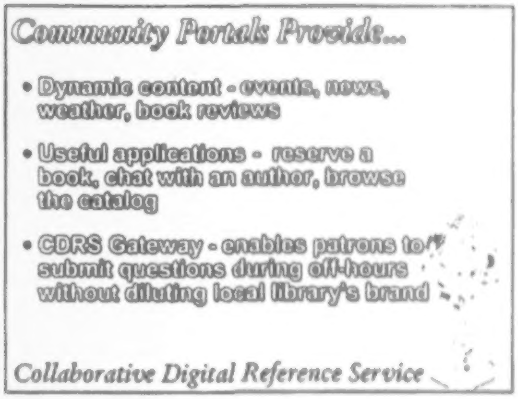
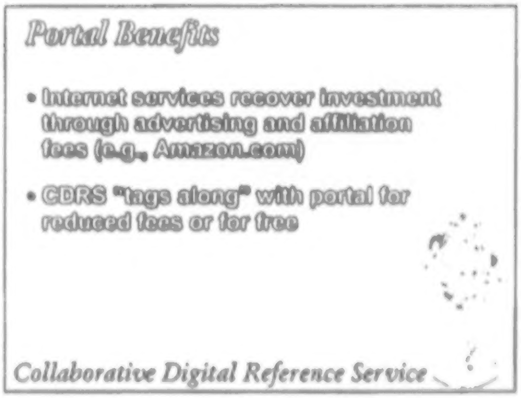


Community Portals Provide...

- Dynamic content - events, news, weather, book reviews
- Useful applications - reserve a book, chat with an author, browse the catalog
- CDRS Gateway - enables patrons to submit questions during off-hours without diluting local library's brand

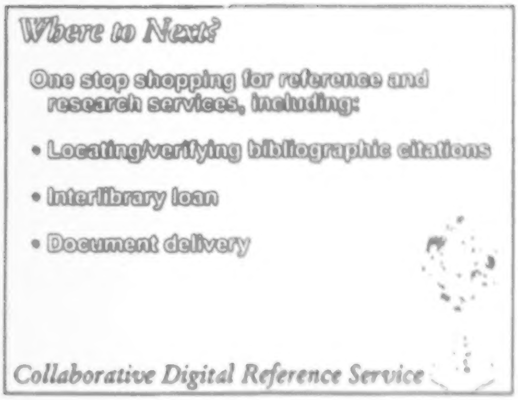
Collaborative Digital Reference Service



Portal Benefits

- Internet services recover investment through advertising and affiliation fees (e.g., Amazon.com)
- CDRS "tags along" with portal for reduced fees or for free

Collaborative Digital Reference Service

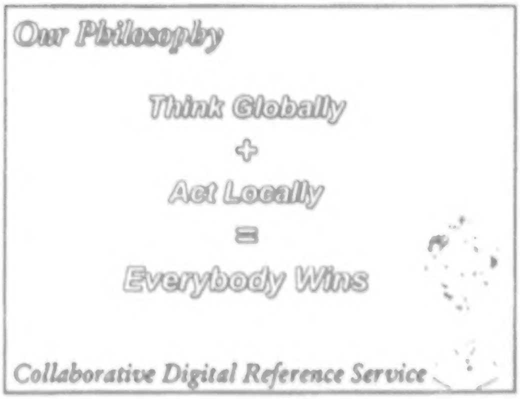


Where to Next?

One stop shopping for reference and research services, including:

- Locating/verifying bibliographic citations
- Interlibrary loan
- Document delivery

Collaborative Digital Reference Service



Our Philosophy

Think Globally

+

Act Locally

=

Everybody Wins

Collaborative Digital Reference Service

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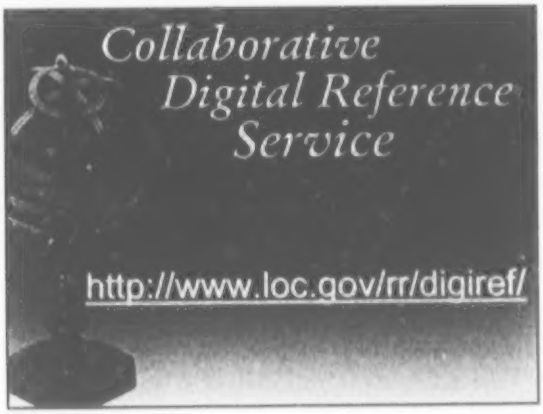

Collaborative Digital Reference Service

http://www.loc.gov/rr/digiref/

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Net Librarian: A Danish National Online Information Service

Vera Daugaard
Herning County Library, Denmark

Abstract

Net Librarian is an Internet-based information service run in cooperation by three Danish public libraries and supported by the Danish Library Authority. The service has existed as a pilot project since October 1999 and is expected to develop into a permanent service in 2001. Net Librarian's Web page (www.biblioteksvagten.dk) includes an inquiry form that enables citizens from all over Denmark to ask questions at any time. This paper discusses the development of Net Librarian and describes challenges encountered such as limited financial resources, marketing, and consistency of service among three separate organizations. The future of Net Librarian is also addressed.

Introduction

Danish public libraries are financed through public funds and the staff is salaried, professional or not. The average expenditure on public libraries is nearly $50 per inhabitant per year. Voluntary programs are non-existent. Due to financial cuts in recent years, it has become clear to many Danish public libraries that cooperation between libraries is necessary in order to develop modern library services.

An example of this type of cooperation is Net Librarian, an Internet-based information service, where citizens may submit questions at any time through the Web and receive an answer within 24 hours. Net Librarian also offers a phone service in the evening, when many Danish libraries are closed. Net Librarian is run in cooperation with three Danish public libraries in Gentofte, Herning and Silkeborg. The project started in 1999 and was originally scheduled to run until September 1, 2000. It is now expected to develop into a permanent service. Besides examining whether there is a need for this kind of national information service, the aims of the project are to:

- Identify organizational and technical problems resulting when three public libraries with different organizational cultures develop common work routines and methods for servicing the end user.
- Examine the extent to which inquiries can be answered independently of the physical library, using information available on the Internet only.
- Assess users' needs in terms of hours of use, types of questions, and geographic location and age of users.
- Determine the professional demands on the librarians staffing the service.

Web Site

The Net Librarian Web site is found at www.biblioteksvagten.dk (the site is currently in Danish only). Since Net Librarian is aimed at users of public libraries, it was agreed that the Web site should be simple and easy to use. The Web site does not contain any fancy graphics that might slow down access to the page. The main component of the Web site is a two-tiered inquiry form. Net Librarian attempted to keep the inquiry form short and discouraged personal questions. The form allows staff to gather sufficient information to compose a quality answer. The upper half contains fields for the user's name, e-mail address, postal code and town, and date of birth, and a text box for the question. This part also includes a dispatch button. It is optional for users to fill in the lower part of the form, which contains information about the purpose of the question, the user's job/education, phone and fax numbers, and address. This information helps staff to locate the correct answer to the user's questions and also allows the staff to send material by mail.

The Web site also contains the following features and information:

- Links to Danish subject-specific information services on the Internet (e.g. Ask Science, Animal Doctor and Denmark's Family Lawyer) - It is unclear whether many of the visitors to our Web site choose to ask their questions at these other services, but we do sometimes refer questions to the services ourselves.
- A link to the Public Libraries' netguide (www.fng.dk) - This netguide consists of about 2,600 links - mostly in the Danish language - to quality information resources on the Internet. All links are chosen by Danish librarians, supplied with annotations detailing content, publisher, etc. and classified into 21 subject groups. Each librarian is responsible for updating the links in a specific subject area.
- Factual information about Net Librarian - Hours of operation, phone and fax numbers, e-mail address, response time, etc. We also inform our potential users about service response policies: Net Librarian points users to information but does not interpret the information, carry out exhaustive literature searches, or provide legal guidance of any kind.
- A page with "bouncing answers" - answers that could not be sent to users because incorrect addresses were given.

Net Librarian is currently adding a chat function to the site for the purpose of real-time interaction between Net Librarian and the user. However, the service has not yet selected an appropriate software product. Products under consideration included NetMeeting (which has the obvious advantage of allowing us to share documents with the user, but couldn't function through the firewalls of our three libraries), ICQ, and Webline (which was too expensive). Our investigations continue.

An "administrative" Web page has been constructed for participating librarians containing:

- Questions sent to Net Librarian via the inquiry form, searchable by answering librarian, title words, question, and answer (questions not yet answered can be sorted out)
- Inquiry form for questions received by phone, fax, or e-mail
- Link to common mail program
- Names, addresses and phone numbers of the participating librarians
- Duty roster
- Instructions (for switching phone and fax and using the common telephone answering device)
- Net Librarian statistics

Staffing and Administration

Net Librarian is supported by the Danish National Library Authority and its financial resources are the responsibility of Herning County Library. The service is formally managed by a steering committee, comprised of one leader from each library, the project manager, and the project researcher. The steering committee sanctions all decisions concerning financial matters, opening hours, marketing initiatives, etc.

The daily work of Net Librarian is planned in the project group, consisting of two librarians from each library, the project manager, and the project researcher. The project group is responsible for the content of the Web site and its construction and all discussions of professional matters.

Building Cooperative Service

One of the purposes of Net Librarian is to identify organizational problems resulting from the cooperation of three public libraries in providing service to the user. A start-up seminar was offered for the participating librarians in order to establish a common professional basis for the future work, and also to encourage social relations between the librarians located in different geographical areas.

At the two-day seminar, "Common Beginning – Common Learning," each library gave a short presentation highlighting their collections, services, cultural issues and local communities. Although Denmark is a small country, these presentations showed striking cultural, social and political differences between locales. The three libraries, however, also have much in common: they participate in many pilot projects and they want to play a virtual part in the future development of Danish public libraries.

The seminar created a sound basis for cooperation within Net Librarian. The project group currently discusses problems and differences, which are bound to occur when the service expands to include more libraries. Ideally, each library should be able to benefit from each other's answers and sometimes finish an answer started by one of the other net librarians.

The cooperative aspect of the service is transparent to the user. The user does not observe a significant difference whether the answer is given by a librarian from Gentofte, Herning or Silkeborg. Net Librarian assumes a common responsibility, based on trust that colleagues in other libraries can deliver an answer of the same quality.

One issue discussed within the project group is how to answer student questions. Some members of the project group are very aware that Net Librarian must never make it unnecessary for students to use their local library. Searching and locating information is generally a virtual part of a student's assignment, and using Net Librarian tends to be regarded as "cheating." In recent years, all Danish public libraries have been working on making students more and more resourceful: we point them to the computers and give them some guidance, but we expect them to carry out the search themselves. To some extent, Net Librarian finds the answer. An inquiry to Net Librarian should lead the user one step further.

I am confident that Danish librarians will soon find a way to make students resourceful on the Internet, too, simply by making Internet-based user guidance available. We will have to accept the fact that the use of Net Librarian and other Internet-based library services replaces visiting the physical library to some extent.

Marketing of Net Librarian

Although we consider Net Librarian a quality service, we know that only very few people have ever heard of it. Our financial resources are limited and resources for marketing are insufficient at about $2,500. The three libraries have put some of their own financial resources into the project, but marketing remains a weak point. To many Danish public libraries, Net Librarian is considered a competitor, because it is available to all Danish citizens and answers questions that would otherwise be addressed by the user's local library.

To minimize the competitive aspect, Net Librarian sent a letter to all the main libraries of the Danish local authorities at the start of the project. The letter explained the ideas behind the project and encouraged the libraries to add a link to Net Librarian from their own Web sites. About one third of the libraries have chosen to do so.

Marketing efforts have included:

- A press release sent to all the national media - Net Librarian was actually mentioned in almost all national newspapers. A few of the newspapers included articles on Net Librarian.
- Registration with a number of Danish search engines - We succeeded in getting the service searchable on the Web sites of various Internet guides in the world of education.
- Local marketing – Interviews were conducted on local radio stations and in local papers in the three communities.
- Bookmarks – A Denmark-based firm named "Bog Card" produces and publishes bookmarks according to customers' requests and distributes them to libraries and bookshops throughout the country. The customer pays for a number of bookmarks and for a certain period of display. At the end of this period, the libraries and bookstores return the remaining bookmarks to "Bog Card" and the customer receives an account of the marketing success. Though this service is rather expensive, the project group recommended "Bog Card" to the steering committee, which approved the action. From March 14 to April 4, 60,000 "Bog Cards" were displayed in 211 libraries and 79 bookshops, and the effect was noticeable; Net Librarian was busy during that period.
- Press material to all Danish community papers – A poster and folder will be sent to selected groups of educational organizations and libraries all over the country.
- Journal Articles – Articles have been written in a number of Danish library journals.

The Future of Net Librarian

Net Librarian's goal has been to develop into a permanent, nationwide service in the Danish library system. The future of the service is still uncertain, but the project's steering committee has applied for financial support from the Danish National Library Authority's Development Pool for Public and School Libraries. If money is awarded, it will be spent on:

- Improving the service, based on researchers' recommendations
- Involving more libraries in the project
- Developing a permanent model for organization, management and financing

The pilot has demonstrated a need to expand hours of operation. Net Librarian is now available during limited hours from October through March only. These hours were chosen based on the project group's assumptions about users' needs.

In the future, Net Librarian will be part of a joint Web portal for all Danish research libraries and eventually public libraries. This Web portal is scheduled to be developed within two years. When the portal is created, Net Librarian will be a significant component.

Ask A Question!
A Collaborative Virtual Reference Service

Valerie Footz
Northern Alberta Institute of Technology

Presentation

Introduction

Ask A Question is a project of libraries in post-secondary institutions in Alberta, Canada. This presentation traces the background, development and structure of the service. It also discusses issues raised over the course of the project.

In the fall of 1998, a group of librarians at three post-secondary institutions in Alberta - Grant MacEwan College, Northern Alberta Institute of Technology (NAIT), and Red Deer College - agreed to collaborate on the development of a shared electronic reference desk. After securing Alberta Government Knowledge Network funds, a pilot project was begun. The project had four goals:

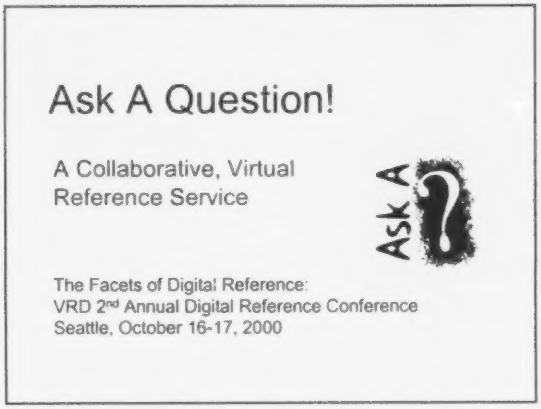
- Assist users in effectively accessing and utilizing a wide range of electronic information sources;
- Create a repository of information from all participating institutions for users to draw upon when reference assistance is not available due to time or place;
- Provide data on users and their approaches to information search and retrieval;
- Determine if shared responsibility for the provision of virtual reference service is feasible.

A review of current library services and existing virtual reference services was undertaken. No satisfactory software application was found to meet the requirements of the project, so the team decided to develop an in-house solution. The result was Ask A Question, which was launched on March 6, 2000. This innovative service has many unique features. Besides allowing students to submit questions through the Web, it offers a continuously updated, searchable database of questions and answers.

The question-answering process is as follows:

1. The user clicks on the Ask A Question icon on the participating institution's library Web page.
2. The user then logs in (after an original registration process) and is taken to the Ask A Question submission form.
3. The submitted question is stored in a database.
4. Ask A Question staff at all three institutions are alerted to new questions.
5. Answers are found and are added to the database, which automatically sends the answer to the user's email address.

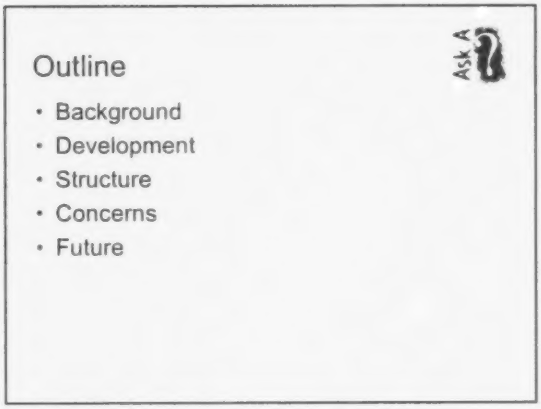
The strength of Ask A Question is its custom-built back end. Ask A Question employs open systems technologies, including PERL and SQL. Staff members have the option of transferring ownership of questions or sending them back to the new list. The integrated e-mail/database workflow allows for the easy management of questions and answers. A collaborative relationship among library staff across institutions is fostered as a result.



Ask A Question!

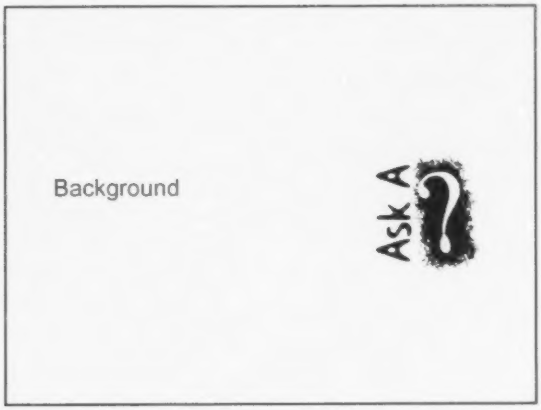
A Collaborative, Virtual
Reference Service

The Facets of Digital Reference:
VRD 2nd Annual Digital Reference Conference
Seattle, October 16-17, 2000

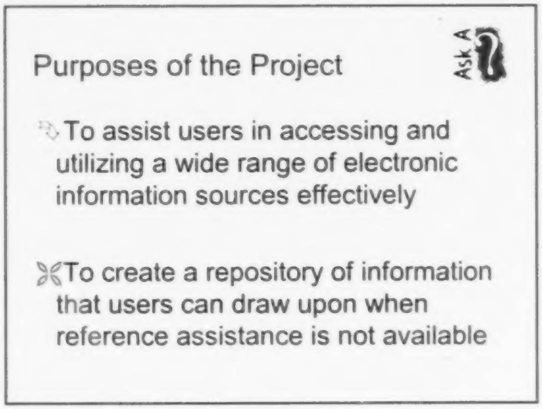


Outline

- Background
- Development
- Structure
- Concerns
- Future



Background



Purposes of the Project

- To assist users in accessing and utilizing a wide range of electronic information sources effectively
- To create a repository of information that users can draw upon when reference assistance is not available

Purposes of the Project

- To provide data on users and their approaches to information searching and retrieval
- To determine if shared responsibility for the provision of virtual reference service is feasible

Project Chronology

- Spring 1998 – Original concept
- Fall 1999 – Autonomous Ask A Question services launched
- Nov 1999 – Stakeholder meeting held to examine technology options for collaboration
- Dec 1999 to Feb 2000 – Beta development
- Mar 6, 2000 – Ask A Question collaborative service launched
- May 2000 – Emerging Projects Grant received
- August 2000 – 3 more libraries added
- Updated chronology

Development

Suggestions

- Know your library and its context
- Know the objective of the service
- Know your users
- Keep current with technology
- Learn from other initiatives
- Listen
- Compromise
- Revise as necessary

Design Considerations and Objectives

- Access from anywhere
- Rapid development
- No funding for hardware/software
- Open systems
- E-commerce principles / "Push" architecture
- Scalability, sustainability

Design Considerations and Objectives (Cont.)

- Data ownership model
- Cross-institutional collaboration
- Highly automated workflow
- Searchable database of answers

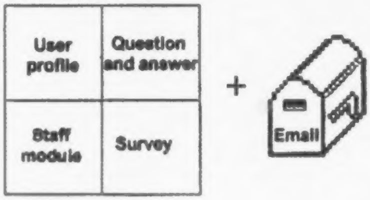
Technical Implementation

- Requires Internet Explorer 4, Netscape 4.X or compliant with JAVA and cookies enabled
- Statistics extracted to another program to compile and analyze
- Authentication is based on e-mail addresses only

Participating Libraries

- Some policies and procedures must be mutually agreed upon:
  - Turnaround times
  - Application of subject categories
  - Permissions for administrative tasks
  - On what basis questions will be chosen for cross institutional ownership – date, subject, shift
- But some decisions must be made at the participating library level:
  - Who participates
  - On basis of ownership within own library

Components



User profile

Question and answer

Staff module

Survey

+

Email

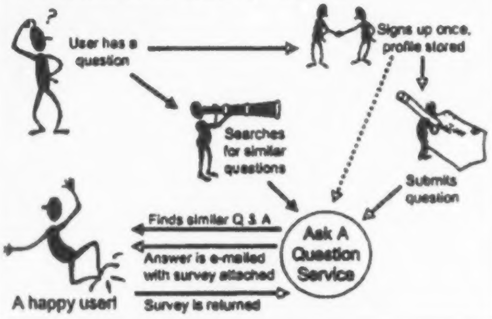
Features

- Captures the reference transaction in a searchable database
- Concept of ownership of questions and individual staff responsibility for answering those questions
- Ease of submitting questions and answers
- Search results are "bookmarkable"
- Survey distributed with answer

Benefits to Users Include:

- 24/7 access
- Level of anonymity
- Answers sent directly to e-mail
- Customized responses
- Quick turnaround
- Pull from expertise from many institutions
- Dynamic searchable database of previously asked Q & A's

Flowchart of User Process



User has a question

Signs up once, profile stored

Searches for similar questions

Submits question

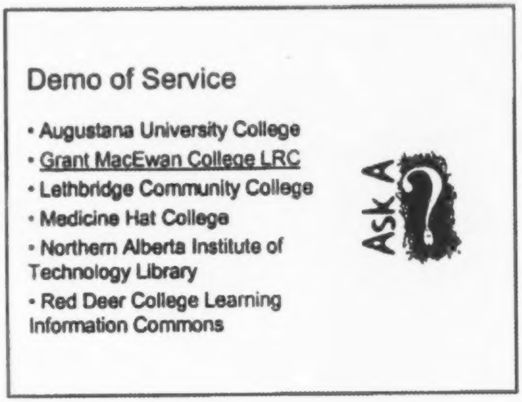
Ask A Question Service

Finds similar Q & A

Answer is e-mailed with survey attached

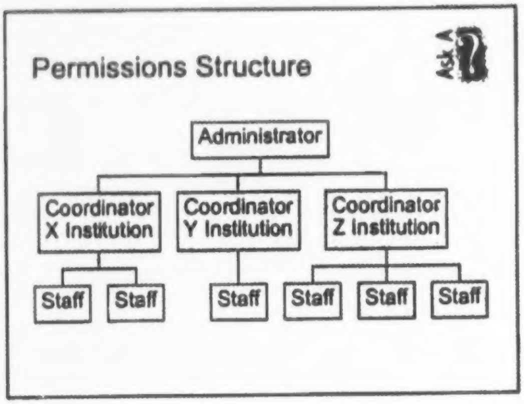
Survey is returned

A happy user!



Demo of Service

- Augustana University College
- Grant MacEwan College LRC
- Lethbridge Community College
- Medicine Hat College
- Northern Alberta Institute of Technology Library
- Red Deer College Learning Information Commons



Permissions Structure

Administrator

Coordinator X Institution

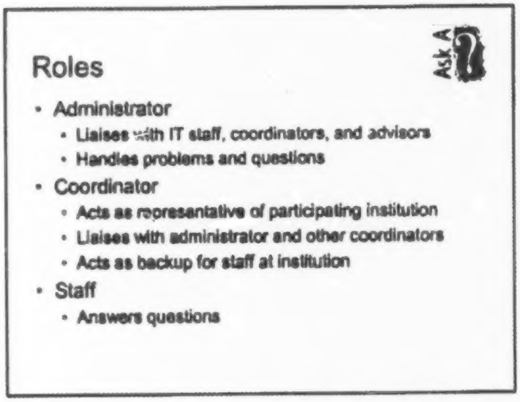
Coordinator Y Institution

Coordinator Z Institution

Staff Staff

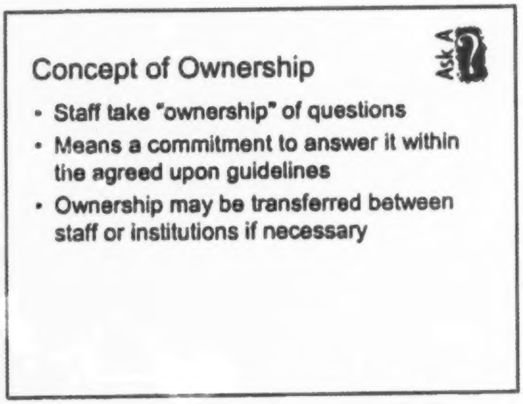
Staff

Staff Staff Staff



Roles

- Administrator
  - Liaises with IT staff, coordinators, and advisors
  - Handles problems and questions
- Coordinator
  - Acts as representative of participating institution
  - Liaises with administrator and other coordinators
  - Acts as backup for staff at institution
- Staff
  - Answers questions



Concept of Ownership

- Staff take "ownership" of questions
- Means a commitment to answer it within the agreed upon guidelines
- Ownership may be transferred between staff or institutions if necessary

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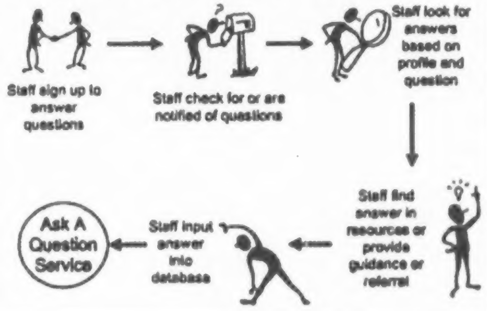
Benefits to Staff include:

- 24/7 access
- Asynchronous written transaction
- Level of anonymity
- Pull from expertise from many institutions
- Dynamic searchable database of previously asked Q & A's
- Easy cohesive Q & A management
- Provides user and collection information

Flowchart of Staff Process



Staff sign up to answer questions

Staff check for or are notified of questions

Staff look for answers based on profile and question

Staff find answer in resources or provide guidance or referral

Staff input answer into database

Ask A Question Service

Staff Question Management

- Send back to new list
- Transfer ownership
- Refer questions
- Pause questions
- Edit questions (administrator only)
- Delete questions

Concerns

- Spamming
- Wrong e-mail addresses
- Authentication
- Knowledge of other institutions and their resources
- Confidentiality
- Retention of data
- Policies and procedures

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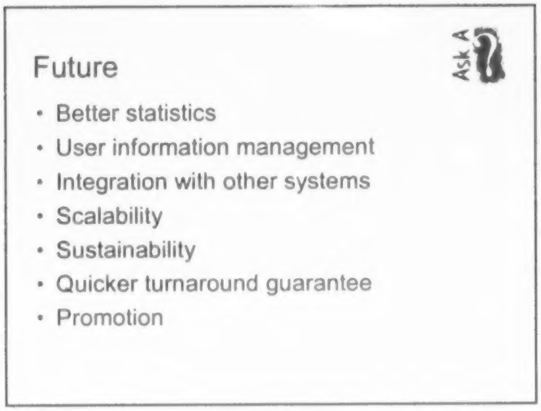
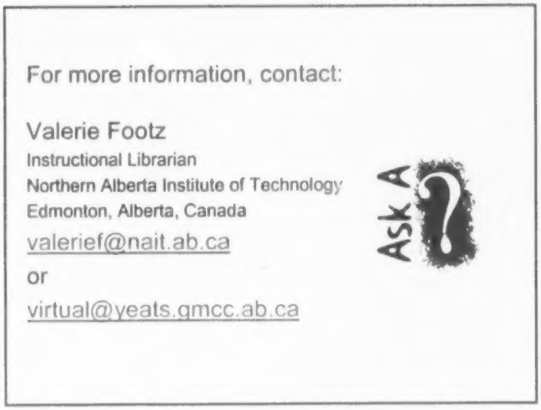


Future

- Better statistics
- User information management
- Integration with other systems
- Scalability
- Sustainability
- Quicker turnaround guarantee
- Promotion



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Building Energy Science and Technology Digital Collections for an Information Infrastructure for the Physical Sciences

Karen J. Spence
Mary V. Schorn
U. S. Department of Energy, Office of Scientific and Technical Information

Abstract

The U.S. Department of Energy Office of Scientific and Technical Information (OSTI) provides a suite of innovative digital information resources. Included in these resources are world-class products that address the three main ways by which researchers disseminate their findings: the DOE Information Bridge (grey literature), PubSCIENCE (journal literature), and the PrePRINT Network (preprints). These products are key components of the suite of resources provided through EnergyFiles, a virtual library of energy-related scientific and technical information. Each product can be searched individually or in parallel with other energy-related resources using EnergyPortal, which is the groundbreaking distributed search mechanism of EnergyFiles. This history of success lays the foundation for OSTI's new initiative, a future Information Infrastructure for the Physical Sciences.

Introduction

The Department of Energy (DOE) is among the leading research agencies in the world, investing seven billion dollars annually in research and development (R&D). It is vitally important for research agencies to disseminate their information as broadly and as quickly as possible, providing access to data and information that fuels essential knowledge. For over 50 years, DOE's Office of Scientific and Technical Information has been collecting, preserving, and disseminating the department's scientific and technical information (STI). By utilizing information age technologies, OSTI has radically changed its information services and has developed a group of award-winning Internet resources that bring science information to the desktop at no cost to the end user. These resources provide easier, faster, cheaper, more complete, and more convenient means of accessing and using global STI by scientists, researchers, academia, industry, and the public.

One-stop shopping is provided with EnergyFiles, a Web-based virtual library of both DOE and worldwide energy-related scientific and technical information. Its search mechanism, EnergyPortal, is easy to use and integrates parallel searching across heterogeneous and geographically dispersed databases and Web sites. Key components of EnergyFiles are DOE R&D Project Summaries (current research), DOE R&D Accomplishments (outcomes of past research), the DOE Information Bridge (grey literature), PubSCIENCE (peer-reviewed journal literature), and the PrePRINT Network (preprints).

DOE Information Bridge

The DOE Information Bridge (*www.osti.gov/bridge*), available since April 1998 in collaboration with the U.S. Government Printing Office (GPO), contains DOE research and development reports in physics, chemistry, materials, biology, environmental sciences, energy technologies, engineering, computer and information science, renewable energy, and other topics. It includes more than 55,000 full-text reports from 1995 to the present, in over 4.3 million pages. It provides free, convenient, and quick access to full-text DOE research and development reports. Users remotely access and download the reports free of charge and in significant volume.

The DOE Information Bridge focuses on providing access to scientific and technical reports produced by DOE, DOE national laboratories and DOE contractors. New reports processed by OSTI are added routinely and legacy reports are added as resources permit. Since its introduction, the content of DOE Information Bridge has more than doubled, and it has been most favorably received. Among the awards and accolades received are:

- Commendation by the Depository Library Council
- Vice President Gore's National Performance Review Hammer Award
- DOE Information Management Technical Excellence Award
- Inclusion in the October 1, 1998 inaugural issue of Access America Online Magazine, a product of the Government Information Technology Services Board
- Favorable review in the University of Wisconsin's "Scout Report" for science and engineering
- Citation by the Global SchoolNet Foundation and Yahoo (Pick of the Day and Week)

The basic search option offers specific data fields and the advanced option incorporates Boolean operators to increase search precision. Users can search the entire collection (full-text and bibliographic data) or portions of it. Full-text page images may be viewed in GIF, PDF, or TIFF formats. PDF (image only) and the original input format are available for downloading full-text documents.

Building and expanding the DOE Information Bridge reinforces DOE's and GPO's commitment to make DOE research reports available and to move federal programs and activities into the ever-expanding world of the information age.

PubSCIENCE

PubSCIENCE (*www.osti.gov/pubscience*) was developed to facilitate searching and accessing peer-reviewed journal literature in the physical sciences and other disciplines of interest to DOE. Made available in collaboration with the Government Printing Office (GPO) in October 1999, it provides for quick, easy, and free searching of 1.8 million citations and abstracts from more than 1,000 journals. Hyperlinks provide access to full-text articles if the user or organization has a subscription to the journal. If the user lacks such a subscription, access to the full text can be obtained by pay per view, by special arrangement with the publisher, by library access, or through commercial providers.

Not only is the Internet changing the way publishers think about publishing, but it has also impacted government's dissemination of scientific and technical information. PubSCIENCE is an outstanding example of converging interests: the user's desire to access current scientific and technical literature, the department's desire to facilitate the flow of peer-reviewed scientific and technical information, and publishers' interests in obtaining the widest possible visibility for their published materials.

PrePRINT Network

The PrePRINT Network (*www.osti.gov/preprint*) was unveiled in January 2000. It is a searchable gateway to preprint sites that contain information about scientific and technical disciplines of concern to DOE. Such disciplines include physics, materials, chemistry, and portions of biology, environmental sciences, and nuclear medicine. Collections and resources included on the PrePRINT Network are provided by academic institutions, government research laboratories, scientific societies, private research organizations, and individual scientists and researchers. The PrePRINT Network facilitates access to these resources, providing a comprehensive set of energy research information, but does not change the content or data provided by the originating site or author.

The PrePRINT Network expedites the dissemination of scientists' research. It is Web-based and provides access to energy-related papers, draft journal articles, and other electronic research materials at 1,000 preprint sites housing over 330,000 documents. More than twenty preprint databases are searchable via a single query. In addition, the PrePRINT Network provides links to over 170 related scientific societies and associations.

Users are offered three search options. A user can browse one specific preprint site or a selected set of sites; within this option, the user may also perform an indexed search of the HTML pages of the available sites. Alternatively, the user can choose "Search Selected Sites" and search multiple preprint sites with a single query. Subject Pathways, the user's third option, allows the user to browse collections by subject area.

In most cases, access to the full-text information on the target sites is open and free of charge. By eliminating the need to locate individual preprint sites through Web searching, researchers can find more relevant information while saving time. The PrePRINT Network is a single point of entry for preprints in the scientific and technical areas.

Additional Digital Collections

In addition to this trilogy of products that addresses the three main ways by which researchers disseminate their findings, OSTI has built and developed complementary digital collections, including:

- **DOE R&D Project Summaries**: brief descriptions of over 17,000 R&D projects currently ongoing within the DOE
- **DOE R&D Accomplishments**: outcomes of past DOE research and development that have had significant economic impact, have improved people's lives, or have been widely recognized as a remarkable advance in science
- **OpenNet**: the DOE legacy collection of declassified documents, developed and maintained by OSTI for the DOE's Office of Declassification
- **ECAPs**: electronic current awareness publications providing subject-based collections; sponsored by DOE Programs
- **Federal R&D Project Summaries**: brief descriptions that demonstrate the value of a portal to information about federal research projects

DOE R&D Project Summaries (*www.osti.gov/rdprojects*), unveiled in June 1997, provides the public with access to key corporate information for more than 17,000 research and development projects performed since 1995 by the department's laboratories and other research facilities. It includes DOE research activities in a wide variety of energy-related scientific disciplines. It has received DOE's Information Management Quality Award for Management/Administrative Excellence in 1997 and was recognized with a Hammer Award from Vice President Gore's National Partnership for Reinventing Government in 1999.

DOE R&D Accomplishments (*www.osti.gov/accomplishments*) is a Web site showcasing the proud heritage of the department's research and development and highlights benefits that are being realized now. It was unveiled in March 1999 as a central forum for providing the public with information about outcomes of past DOE-sponsored or generated research and development. The core of the Web site is a searchable database. Complementing the database is a page of "Snapshots" that highlight research and development accomplishments. When information about a Snapshots topic becomes available from the DOE R&D Accomplishments Database, links to full-text reports are identified and provided.

OpenNet (*www.osti.gov/opennet*) provides easy, timely access to recently declassified DOE information, including information declassified in response to Freedom of Information Act requests. It includes references to all documents declassified and made publicly available after October 1, 1994.

ECAPs (Electronic Current Awareness Publications) (*www.osti.gov/ecaps*) is a collection of bibliographic citations, broken out by subject area, from the Energy Science and Technology Database (EDB). For DOE reports, links are provided to full-text documents. These long-standing paper publications were recently transitioned to a searchable Web product. OSTI publishes several separate ECAPs and maintains a collection of over 30,000 ECAP citations.

Federal R&D Project Summaries (*www.osti.gov/fedrnd*) was released in April 2000 and provides a unique window to the federal research community, allowing agencies to better understand the research and development efforts of their counterparts in government. It provides insight to the public in how its investment in research and development is being used and supports full-text single-query searching across databases residing at different governmental agencies.

EnergyFiles

The umbrella for this suite of resources is EnergyFiles (*www.osti.gov/energyfiles*), which was released in May 1997. It is a Web-based virtual library that provides easy access to over 500 widely diverse collections of both DOE and worldwide energy-related STI.

The EnergyFiles search mechanism, EnergyPortal Search, provides for increased site efficiency and ease of knowledge discovery. EnergyPortal has conquered a major obstacle confronting multi-source virtual libraries. Its unique search capability provides distributed searching across decentralized, heterogeneous databases and Web sites linked to EnergyFiles. Words or phrases are entered in a single query box and the query is distributed in parallel to the user-selected multiple databases and Web sites residing at diverse locations.

EnergyPortal Search continues to represent a breakthrough in information retrieval. It enables users to search across 26 databases and 500 Web sites. The sites, maintained by various agencies, are geographically dispersed, and require no standardization in terms of format, software or metadata. EnergyPortal will search full text (when available); DOE databases and collections; databases of other agencies such as the Defense Technical Information Center (DTIC), the National Aeronautics and Space Administration (NASA), the National Library of Medicine (NLM) and the Environmental Protection Agency (EPA); and other resources. When the individual database supports it, the searched word or phrase is highlighted for easy access.

Awards and recognitions received by EnergyFiles include:

- Vice President Gore's National Performance Review Hammer Award
- Inclusion in the October 1, 1998 inaugural issue of Access America Online Magazine
- Favorable review in the University of Wisconsin's "Scout Report" for science and engineering
- Feature spot in "Federal Computer Week," with emphasis on EnergyPortal

Future Information Infrastructure for the Physical Sciences

This history of success lays the foundation for a future Information Infrastructure for the Physical Sciences, which focuses on energy, science, and technology. The goal of this new initiative is to provide a comprehensive resource for worldwide scientific information available at the desktop, a Web-based network that can be accessed by researchers, engineers, educators, students, industry, and the public.

The objectives of the Information Infrastructure for the Physical Sciences are to deliver a permanent, comprehensive resource for accessing and using scientific information; facilitate research and discovery to secure a healthy and competitive science and technology future; raise scientific and technological literacy of all Americans; produce the finest scientists and engineers for the 21st century; promote scientific research and development results as a foundation for future advancements; and establish a digital library that is complementary to existing national libraries in providing federally-sponsored information to the public. These existing libraries include the National Library of Medicine, the National Agricultural Library, the National Library of Education, the National Transportation Library, the EPA National Library Network, and the National Science, Mathematics, Engineering, and Technology Education Digital Library (NSDL).

The Information Infrastructure for the Physical Sciences will significantly expand DOE's local presence across the nation. Such an active publicly-oriented presence will bring scientific and technical information, energy data and prices, and consumer and educational information to the regional level for application and use at the local level by consumers, researchers, educators, students, and industry.

A major challenge for a digital library is to incorporate search capabilities across heterogeneous databases and Web sites when there is no standardization of data and information resides in multiple forms on a variety of unrelated systems at widely dispersed facilities. Sophisticated distributed searching capabilities will allow the user to access information without having to know which database to use, which information collection to pursue, or the organizational structure of the agency making the information available. This search capability must be augmented by the ability to deliver the information retrieved electronically to the desktop, either directly, through licensing agreements, or through other cooperative arrangements.

The initiative will ensure the delivery of validated research information while strengthening and sustaining the nation's leadership in science and technology. Resource requirements, partnership arrangements, and numerous other planning activities are currently being explored as support for this initiative continues to grow.

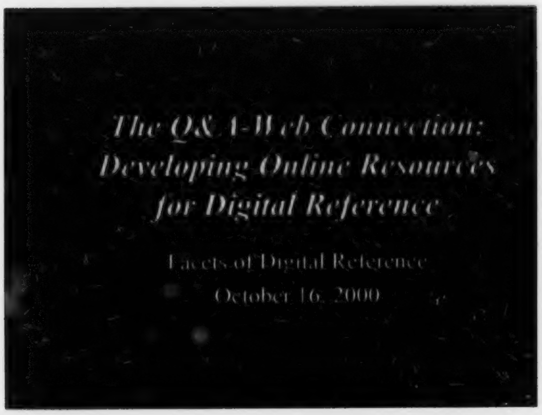
The Q&A-Web Connection: Developing Online Resources for Digital Reference

Pauline Lynch Shostack
AskERIC

Presentation

Introduction

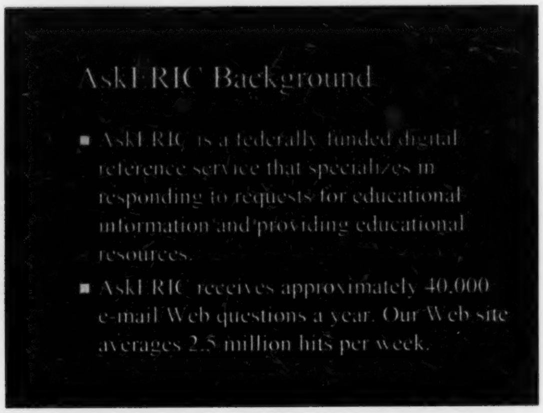
This session describes how the AskERIC question-answer service is expanding content on its Web site based on questions received. Newly added features, expected January 2001, include the AskERIC Response Archive and over 4,000 educational resources.



The Q&A-Web Connection: Developing Online Resources for Digital Reference

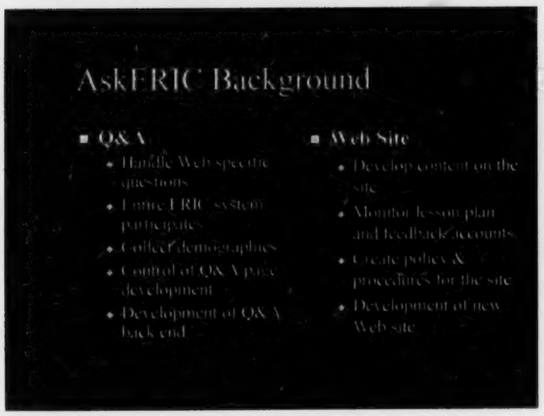
Facets of Digital Reference

October 16, 2000



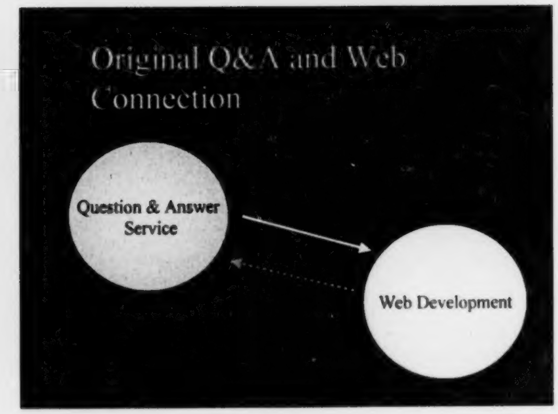
AskERIC Background

- AskERIC is a federally funded digital reference service that specializes in responding to requests for educational information and providing educational resources.
- AskERIC receives approximately 40,000 e-mail/Web questions a year. Our Web site averages 2.5 million hits per week.



AskERIC Background

- **Q&A**
  - Handle Web-specific questions
  - Entire ERIC system participates
  - Collect demographics
  - Control of Q&A page development
  - Development of Q&A back end
- **Web Site**
  - Develop content on the site
  - Monitor lesson plan and feedback accounts
  - Create policy & procedures for the site
  - Development of new Web site



Original Q&A and Web Connection

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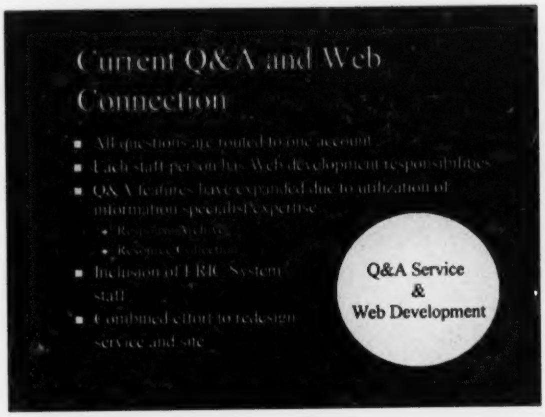
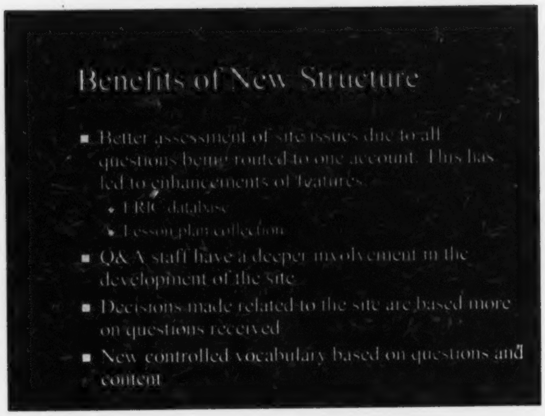


Current Q&A and Web Connection

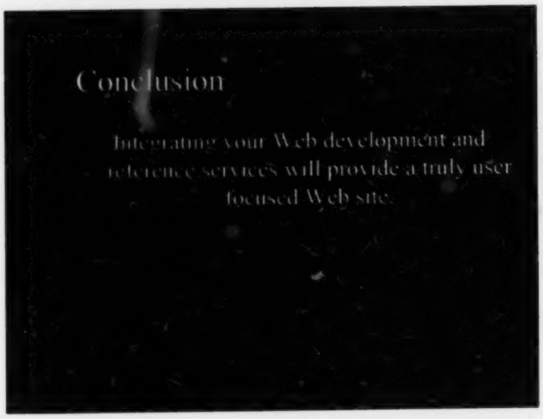
- All questions are routed to one account
- Each staff person has Web development responsibilities
- Q&A features have expanded due to utilization of information specialist expertise
  - Response Archive
  - Resource Collection
- Inclusion of ERIC System staff
- Combined effort to redesign service and site

Q&A Service
&
Web Development



Benefits of New Structure

- Better assessment of site issues due to all questions being routed to one account. This has led to enhancements of features.
  - ERIC database
  - Lesson plan collection
- Q&A staff have a deeper involvement in the development of the site
- Decisions made related to the site are based more on questions received
- New controlled vocabulary based on questions and content



Conclusion

Integrating your Web development and reference services will provide a truly user focused Web site.

AskERIC on the Web

www.askeric.org

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Electronic Data Resources Procurement at CIA

Blane Ampthor
Central Intelligence Agency

Presentation

Introduction

For the past several years, the Central Intelligence Agency (CIA) library has made an effort to utilize more electronic resources and make more reference resources available on the desktops of the agency population. This effort has included obtaining data via CD-ROM, subscriptions to electronic resources and, when appropriate, the replacement of hardcopy resources with their electronic equivalents.

In an effort to exercise the library's role as a leader of open-source information procurement and utilization within the CIA, the library has recently created a group called the Data Resources Council (DRC). The DRC and its subgroup, the Data Resources Council Working Group (DRCWG), seek to be the vehicles within the Directorate of Intelligence (DI), the analysis-producing arm of CIA, by which new requests for electronic data are evaluated. The purpose of forming the DRC and the DRCWG is to evaluate new resources and trends in electronic information, to reduce duplicate purchases of data, and to foster cooperation and resource sharing in an effort to save money while making as many electronic resources available as possible.

This presentation explains the business process and workflow of the DRC and DRCWG as well as the effectiveness of the procedures and groups in achieving the above goals.

Electronic Data Resources Procurement at CIA

Blane Ampthor
Central Intelligence Agency Library
10/16/00

Background

- Management recognized need to better handle electronic material procurement and processing
- Data Resources Council (DRC) and Data Resources Council Working Group (DRCWG) formed in early 1998
- Efforts primarily aimed at Directorate of Intelligence (DI), the analysis-producing arm of CIA

DRC Purpose and Mission

- Identify and remedy gaps in and duplication of electronic resources across the Directorate of Intelligence (DI)
- Vet plans for new capabilities involving open source exploitation
  - CIA has classified and unclassified resources and systems; open source defined as publicly-available material

DRC Purpose and Mission (Cont'd.)

- Establish procurement priorities for open source materials
- Leverage our investments: "Right data to the right people"
- Develop corporate plans and strategies for enhancing variety of resources available to users
- Oversee integration of open source materials in corporate knowledge system

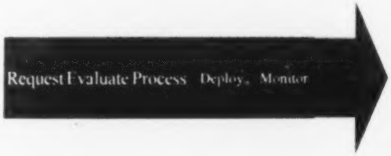
DRCWG Mission and Purpose

- Group charged with implementing polices and recommendations of DRC
- Develop process to identify, procure and deploy electronic open source resources
- Eliminate unnecessary redundancy in DI open source electronic data procurements
- Identify collection gaps – subject areas for which resources are weak – by surveying collections

Approach to Forming DRC and DRCWG

- Establish process for DI-wide coordination of electronic data resources procurement
- Maintain an inventory of electronic data resources available in the DI
- Identify offices' focal point to coordinate electronic data resources requirements
- Establish forum to review procurement mechanisms and deployment options early in the process

Business Process and Workflow



DRC Membership

- Senior managers from each DI office, computer support staff, data procurement office
- Membership aims to include representatives from stages of entire procurement process

DRCWG Membership

- Office representatives - experts in content evaluation and office data needs - Electronic Resource Officer (ERO)
- Several librarians deployed to offices as reference resource and area experts
- Library staff - provides support to entire agency; experts in information needs of all employees

DRCWG Membership (Cont'd.)

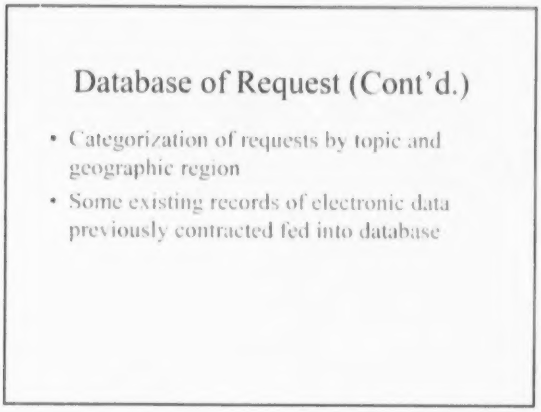
- Publications purchasing office
- Computer support staff

Role of Library in Workflow

- Content expertise
  - Library reference personnel located in offices for support, resource expertise
- Broker for interested offices and vendors
- Provides technical evaluation and support
- Hosts some procured resources - currently has about 50 sources at desktop
- DRCWG chair and coordinator

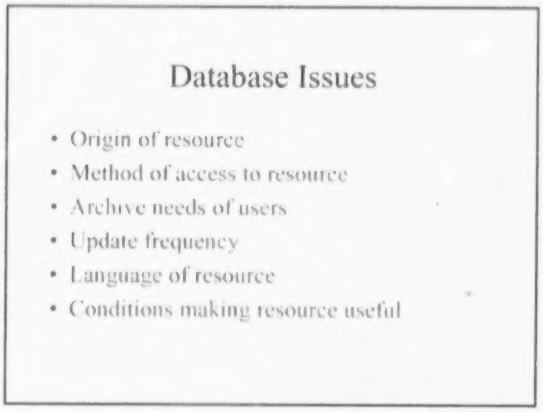
Database of Requests

- Numerous issues addressed due to various sources of electronic data and user requirements
- Fee-based resources required coordination of budget personnel, requester, supervisor
- Structured review process implemented
- Notification to requester of each change in status during evaluation process



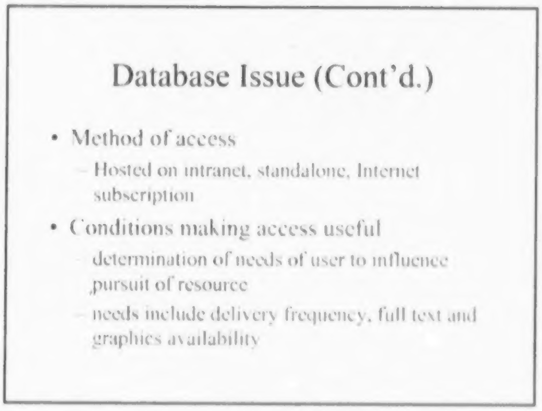
Database of Request (Cont'd.)

- Categorization of requests by topic and geographic region
- Some existing records of electronic data previously contracted fed into database



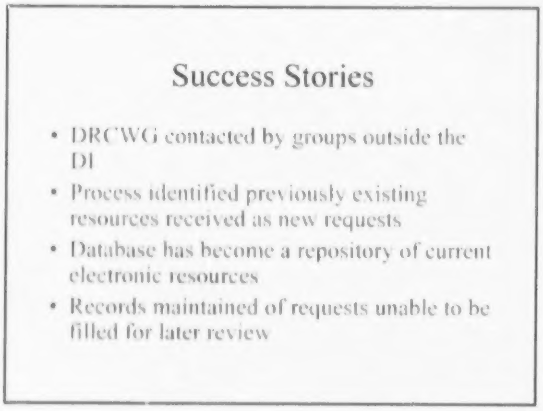
Database Issues

- Origin of resource
- Method of access to resource
- Archive needs of users
- Update frequency
- Language of resource
- Conditions making resource useful



Database Issue (Cont'd.)

- Method of access
  - Hosted on intranet, standalone, Internet subscription
- Conditions making access useful
  - determination of needs of user to influence pursuit of resource
  - needs include delivery frequency, full text and graphics availability



Success Stories

- DRCWG contacted by groups outside the DI
- Process identified previously existing resources received as new requests
- Database has become a repository of current electronic resources
- Records maintained of requests unable to be filled for later review

Success Stories (Cont'd.)

- Sharing of resources by multiple offices with library hosting material
- DRCWG brokers offices' share of existing, high-cost resources
- Increasing coordination with other data purchasers within CIA

Contribution to Remote Reference

- Process makes more resources available to more users by a common host such as the library
- Offices are less likely to purchase products for their exclusive use
- Process allows existence and applicability of products to be advertised in a formal fashion

Contribution to Remote Reference (Cont'd.)

- Library has designated contacts who provide input on utility of potential and existing products
- Product evaluation process raises awareness of resources
- Coordination with other groups attempting similar process
- DRC has endorsement of high level managers

Obstacles to Work Flow

- Offices are not forced to participate - it is in the best interest of the office to do so
- Offices can still purchase products by and for themselves
- DRCWG is not an approval mechanism just an evaluation and recommendation body

Obstacles to Workflow (Cont'd.)

- Offices have varying amounts of money for resources and unique priorities
- Offices have varying levels of need to use the DRCWG

Future Roles of DRC and DRCWG

- Expansion outside the DI
- More and continuing marketing as DI funds decrease
- Merging of several other existing data procurement efforts
- Forum to evaluate other products associated with data resources

Future Roles of DRC and DRCWG (Cont'd.)

- Act as a broker of funding of data resources including possible role of source of some funds

Evaluating Digital Resources: The VIVA Consortium Assesses GaleNet

Jim Self
University of Virginia Library

Presentation

Introduction

The Commonwealth of Virginia established a statewide consortium called VIVA (The Virtual Library of Virginia) in 1994 to bring electronic resources to the college and university libraries of the state. For the first few years of its existence, VIVA was primarily concerned with selecting and acquiring new resources, but now the consortium faces the need to rigorously evaluate existing resources and to decide which titles should be continued.

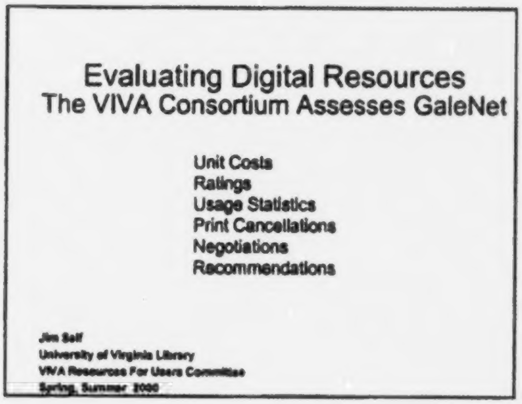
This report describes a process used to evaluate one set of digital reference resources. VIVA has subscribed to this set since January 1997 and is currently making a decision whether to continue the databases for 2001 and future years. The Resources for Users Committee is responsible for devising and conducting the evaluation.

The evaluation instrument includes an examination of the usage statistics for each database as compared with its cost. Also, librarians at VIVA institutions have completed a Web based survey indicating the importance of each title and noting if their institution also has a print subscription to the title. The survey form encouraged librarians to comment about each database.

The qualitative results have been merged into tabular and graphical presentations, which display usage and ratings in a single document, allowing easy comparison of the databases. The data for each title were examined as a composite, and then analyzed by type of institution (doctoral university, four year college, or community college), because it is important to know if the results vary significantly among the various types of institutions.

In addition to the qualitative measures, the evaluation group has conducted a more traditional qualitative assessment, including a narrative report, which considered the coverage, usability and technical performance of each title. The findings of the qualitative report and the quantitative data were compared and incorporated into the final report, which includes recommendations for the continuation or cancellation of each title.

This tool was developed to evaluate a single set of related databases, but in the future it will serve as a model for evaluating other VIVA databases. Furthermore, we expect it may have applications for other consortia and institutions.

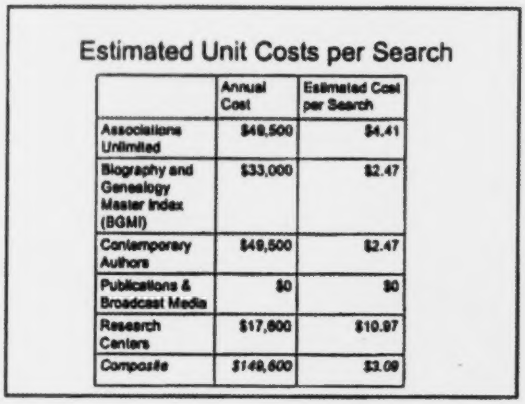


Evaluating Digital Resources

The VIVA Consortium Assesses GaleNet

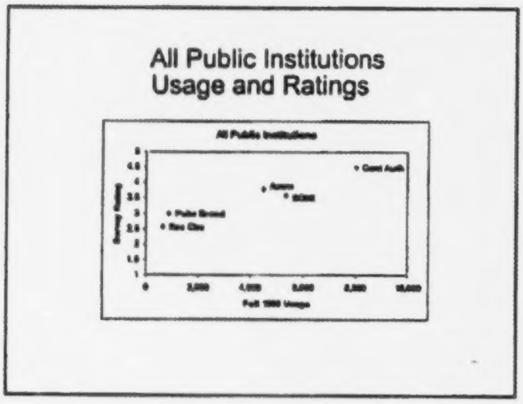
Unit Costs
Ratings
Usage Statistics
Print Cancellations
Negotiations
Recommendations

Jim Self
University of Virginia Library
VIVA Resources For Users Committee
Spring, Summer 2000

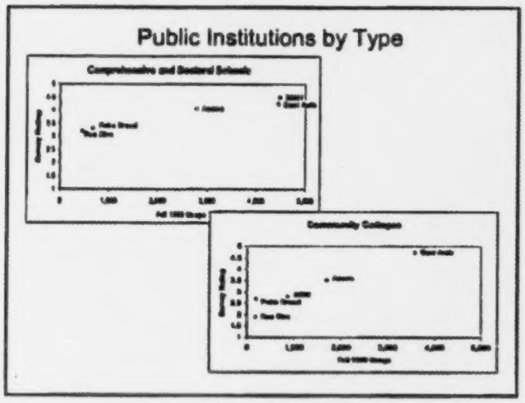


Estimated Unit Costs per Search

	Annual Cost	Estimated Cost per Search
Associations Unlimited	$49,500	$4.41
Biography and Genealogy Master Index (BGMI)	$33,000	$2.47
Contemporary Authors	$49,500	$2.47
Publications & Broadcast Media	$0	$0
Research Centers	$17,600	$10.97
Composite	*$149,600*	*$3.09*



All Public Institutions Usage and Ratings



Public Institutions by Type

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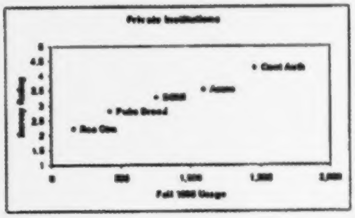
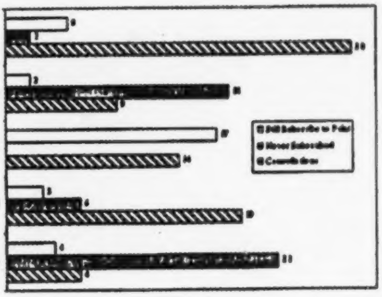
Private Institutions Usage and Ratings



Print Subscription Status - Public VIVA Institutions



Contemporary Authors

- Highest rating, highest statistics
- Low cost per search
- Crucial database, but online version is flawed
- Many libraries have retained the print version
- Recommend renewal, but Gale should address our concerns, in writing, before we renew

Associations Unlimited

- Use and rating both reasonably high
- Cost per search is mid-range
- Used equally by all types of institutions
- Over 50% of institutions have cancelled print
- Recommend renewal

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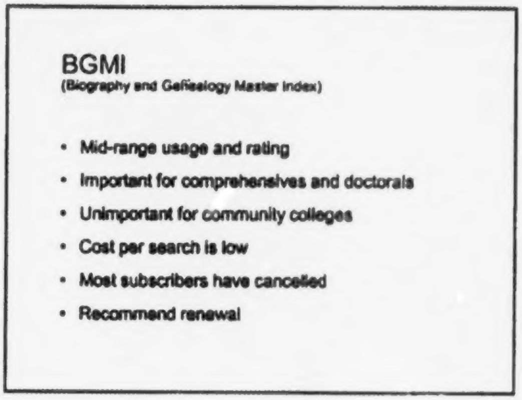
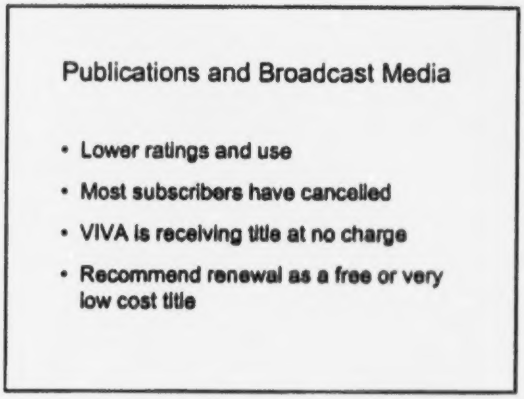


BGMI

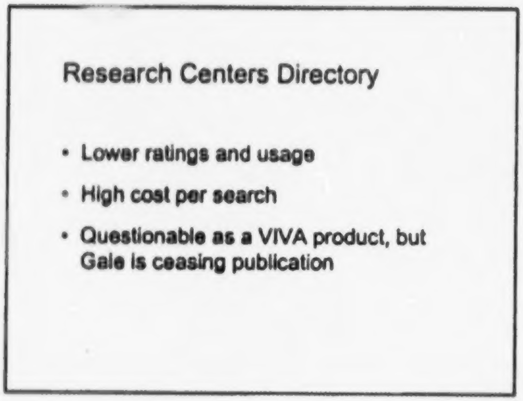
(Biography and Genealogy Master Index)

- Mid-range usage and rating
- Important for comprehensives and doctorals
- Unimportant for community colleges
- Cost per search is low
- Most subscribers have cancelled
- Recommend renewal



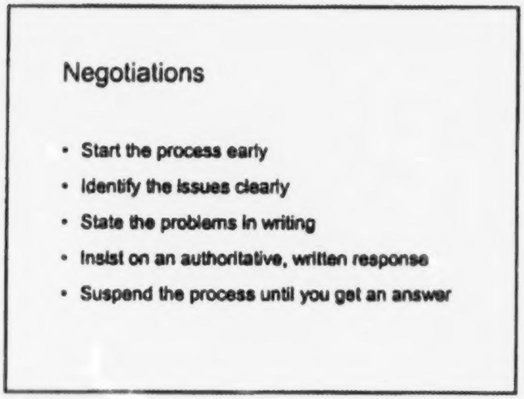
Publications and Broadcast Media

- Lower ratings and use
- Most subscribers have cancelled
- VIVA is receiving title at no charge
- Recommend renewal as a free or very low cost title



Research Centers Directory

- Lower ratings and usage
- High cost per search
- Questionable as a VIVA product, but Gale is ceasing publication



Negotiations

- Start the process early
- Identify the issues clearly
- State the problems in writing
- Insist on an authoritative, written response
- Suspend the process until you get an answer

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Pricing

- Recommendations based on assumption that cost per title will not increase significantly.
- Total cost should be no more than the current price including Research Centers.

Recommendations for the Evaluation Process

- Diverse group of evaluators
  - By geography and type of institution
- Varied forms of information
  - Usage statistics
  - Quantitative ratings by librarians
  - Narrative reviews
  - Cancellation data
  - Open ended comments by librarians

Credits

Subcommittee members:

Jim Self, University of Virginia, Chair
Jacque Dessino, Tidewater CC
Karen Hartman, Mary Washington College
Linda Richardson, Virginia Tech

U.Va. Management Information Services:

Dave Griles, Programmer
Joy Borkholder, Intern

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Facets of Digital Reference

The Virtual Reference Desk
2nd Annual Digital Reference Conference
October 16-17, 2000 • Seattle, Washington USA

Conference Proceedings

About the Contributors

A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z

A

Jessica Albano received her M.L.I.S. from the University of Washington's School of Library and Information Science. She is currently the communications studies librarian at the University of Washington's Suzzallo and Allen Libraries. As one of the first librarians to manage LibQuest, Jessica helped to shift the focus to incorporating electronic reference as well as electronic information services.

Blane Ampthor is reference librarian at the Central Intelligence Agency, where he has worked since 1985. Ampthor has worked in a variety of library-related jobs at CIA and the library since 1991. Ampthor spent four years on loan supporting a geographic office as an on-site librarian. He received his MLS in 1993 from Catholic University in Washington, DC and a B.A. in Communications from University of Scranton in 1982.

Eric Anderson is a library assistant for Electronic Reference Services at North Carolina State University Libraries. He worked as a library assistant in the Research and Information Department at NCSU Libraries since 1990 and as a student assistant in the Reference Department at NCSU Libraries from 1986-1989. Eric received a B.A. in Urban and Regional Planning at Eastern Washington University in 1985. He completed graduate coursework in Landscape Architecture at North Carolina State University, and is a graduate student in Library and Information Science at North Carolina Central University.

Meredith Ault is a distance learning librarian at the Florida Distance Learning Reference & Referral Center. She graduated with her M.S.L.I.S from the University of North Carolina-Chapel Hill in 1998. She worked as a corporate librarian for Unisys Corporation in Philadelphia before joining the Florida Distance Learning Reference & Referral Center in March 1999.

B

Silvia Barcellos is a Ph.D. candidate at the School of Information Studies at Syracuse University. Prior to her enrollment in the Ph.D. program, she worked for a Brazilian government research institute where she participated in the design and implementation of information systems for libraries and information centers. Silvia received a B.S. in Electrical Engineering from the University of Brasilia and an M.S. in Computer Science from the *Instituto Nacional de Pesquisas Espaciais* in São Paulo. Her dissertation is titled *Understanding Intermediation in a Digital Environment: An Exploratory Case Study*. Silvia plans to defend her dissertation by spring 2001. She is a member of the American Society for Information Science (ASIS) and the Association for Computing Machinery (ACM). Silvia is the VRD 2000 Conference Student Paper Award Winner.

Blythe Bennett is the Virtual Reference Desk Learning Center Coordinator at the Information Institute of Syracuse at Syracuse University. Before joining the VRD project, she coordinated the KidsConnect project, an Internet based Q&A project for K-12 students. Blythe was a high school Spanish teacher, sixth grade teacher and elementary school librarian. She received her M.L.S. from Syracuse University and her bachelor's degrees from Marietta College.

Josh Boyer is a reference librarian for distance learning at North Carolina State University Libraries, where he began working in August 1999. Prior to library school, he worked as a newspaper reporter in Chapel Hill and Tarboro, North Carolina. Boyer received his M.L.S. from the University of North Carolina at Chapel Hill in 1999 and a B.A. in English from the University of North Carolina at Chapel Hill in 1994.

Brett Butler is the founder and CEO of AnswerBase Corporation, a new reference information system. AnswerBase is creating new standards of reference support, based on an innovative standardized data content format. He has been a database publisher, librarian, and bookseller and has spoken and written widely in the education community and information industry.

C

Karen Ciccone is acting head of research and information services at North Carolina State University Libraries. She has also served as reference librarian for Physical and Mathematical Sciences from 1997 to the present. Karen received her M.L.S. from University of North Carolina at Chapel Hill in 1997 and her B.S. in Physics from Rhodes College in Memphis, TN in 1987. She taught high school physics in Santa Barbara, CA from 1991-1995.

Steve Coffman is the new Product Development Manager for LSSI (Library Systems and Services Inc.), an organization providing professional library services to a wide variety of institutions including the Department of Energy, the Office of Veterans Affairs, Riverside County, Jersey City, Calabasas, Hemet, and Chatham College. Steve will focus on developing live, real-time reference services on the Web for the libraries that work with LSSI. Prior to coming to LSSI, Steve worked for 15 years at the County of Los Angeles Public Library as the Director of FYI, the County's Business Research Service. Steve has written several articles for library trade journals, including "What If You Ran Your Library Like a Bookstore?", "Building Earth's Largest Library", "Reference As Others Do It", "And Now a Word from Our Sponsor", and, most recently, "The Librarian and Mr. Jeeves", which appeared in the May 2000 issue of *American Libraries*. Coffman is the recipient of the 2000 VRD Director's Award.

Paul Constantine heads the Reference Services Division of Cornell's Olin•Kroch•Uris Libraries. He is responsible for planning, implementing, managing and evaluating reference and instructional services for the largest library unit on the Cornell campus. One of his chief interests is reference service for remote users; his division has experimented with providing reference service via video-conference software and is currently providing live, interactive service using *LivePerson* software.

D

Vera Daugaard is reference librarian at Herning County Library in Denmark, where she has worked since receiving her library degree in 1979. Currently, she is the project manager of Net Librarian.

JoAnn DeVries is reference librarian and bibliographer for the agricultural sciences at the University of Minnesota, where she has worked since 1986. She is coordinator of collections for the libraries supporting the College of Agriculture, Food and Environmental Sciences, College of Biological Sciences, College of Human Ecology, College of Natural Resources, College of Veterinary Medicine, and the School of Social Work.

E

Michael B. Eisenberg is director of the Information School at the University of Washington, Seattle. Mike conducts research, writes, consults, and lectures frequently on information problem-solving, information literacy, information technology, the Internet, and information management in learning and teaching. He is co-creator of the Big6 Skills approach to information problem-solving and technology in learning and teaching. Mike earned his M.L.S. from the State University of New York at Albany and his Ph.D. in Information Transfer from the School of Information Studies at Syracuse University.

F

Valerie Footz is an instructional librarian at the Northern Alberta Institute of Technology (NAIT) in Edmonton, Alberta. Prior to this position, she was shared between Grant MacEwan College and NAIT to work on the Ask A Question project. From 1990 to 1999, she was a law librarian at the Access to Justice Network (Faculty of Extension, University of Alberta) which is a Web-based service used to provide legal information to Canadians.

G

Melanie A. Gardner is the coordinator of AgNIC at the National Agricultural Library (NAL). She coordinates the AgNIC Alliance partnership and maintains communication among partners. Prior to her present position, she was the social sciences librarian in NAL's Rural Information Center. Before coming to NAL, she worked for the University of Maryland at two different campuses. She holds a B.S. in Education, and a Master of Library Science with a concentration in rare books and manuscripts/archives. Ms. Gardner taught school for 7 years and has been a librarian for over 15 years and has been part of the transition from traditional to electronic reference services.

Suzanne Gray received her master's degree from the University of Michigan's School of Information in 1999 and is currently a member of the University Library's Residency Program. Her forthcoming publication is an analysis of virtual reference services in academic libraries, and she coordinates the University Library's Ask Us virtual reference service.

H

Adam Hall has been the manager of operations for reference and research services in the University of Washington's Suzzallo and Allen Libraries since 1997, and coordinator of information services since 1992. He was assistant head of circulation at the Berkeley Public Libraries for five years prior to moving to the Pacific Northwest and joining the UW Libraries staff. Adam was one of the originators of the Libraries' LibQuest e-mail information service and currently continues his involvement. He also has a master's degree in counseling psychology and has been in private counseling practice since 1991.

Bruce Henson is assistant head of reference at the Georgia Institute of Technology Library and Information Center. He received an M.L.S. from the University of North Carolina at Chapel Hill School of Information & Library Science. Henson has worked at Georgia Tech since 1998. He coordinates the digital reference service.

Carol A. Hert is on the faculty of the School of Information Studies at Syracuse University and is a 2000-2001 American Statistical Association/National Science Foundation/Bureau of Labor Statistics Research Fellow at the United States Bureau of Labor Statistics. She has significant research experience in user information seeking behavior, system evaluation and design (related to information seeking), and organizational responses to technology. Her current funded research concerns statistical agency efforts to address the needs of citizens.

Chrystie Hill is a second year graduate student with the University of Washington Information School and a student reference librarian for the Seattle Public Library. Her primary research interests are in reference, particularly the reference exchange in digital environments. As a research assistant for the Information School, she worked in 1999-2000 with Joe Janes and Alex Rolfe on a grant from the Library of Congress characterizing attitudes about digital reference and digital reference services in public and academic libraries, and analyzing information exchange services on the World Wide Web. Their current research characterizes commercial and non-commercial Ask An Expert services and will be published after further development in the following academic year.

J

Joseph Janes is assistant professor at the Information School of the University of Washington. He is interested in reference, particularly in the use of technologies to mediate and assist, and the use of networked resources in reference. His research is on models of practice in digital reference. He teaches courses in reference, online searching, research methods and statistics, and on the use of Internet technologies in librarianship. Janes holds an M.L.S. and Ph.D. from Syracuse University.

Margo Jeske is a reference librarian with the Library of Parliament in Ottawa, Canada. Margo graduated from the University of Western Ontario's Master of Library and Information Science program in 1983. Since joining the Library of Parliament in 1989, Margo has worked as both a reference librarian and database coordinator, and has been involved with the PARLREF project since 1997.

K

Cindy Kaag is head of the Sciences Libraries at Washington State University. She has been at Washington State University since 1986. She has served previously as head of collection development for the Science and Engineering Library and head of the Education and Agricultural Sciences Libraries. She is involved with collection evaluation and participated in a grant to encourage sharing of resources in the Pacific Northwest; she also published an annotated bibliography of collection evaluation techniques through ALA. She teaches an information literacy class to distance education students in agriculture.

Diane Kresh is director for public service collections and director for preservation at the Library of Congress (LC). Her experience at LC has covered a wide spectrum of responsibilities, including copyright, collections maintenance, document delivery, reference, user training, photo duplication services, and conservation. Diane serves on the LC Internet Policy Committee, directs nearly all the library's general and special collections, and is leading the effort to provide enhanced Internet services for public researchers.

L

R. David Lankes is director of the Information Institute of Syracuse (IIS) and an assistant professor at Syracuse University's School of Information Studies. Lankes is co-founder of AskERIC, and founder of the Virtual Reference Desk Project. Dave speaks and consults nationally on Internet issues in education and business. Lankes' research is in education information and digital reference services. Lankes received his B.F.A. in Multimedia Design, M.S. in Telecommunications and Ph.D. in Information Transfer from Syracuse University.

M

Barbara MacAdam is currently the head of reference for the University of Michigan Library, and former head of the Undergraduate Library at UM. As an adjunct faculty member in the School of Information and the College of Literature, Science and Arts, her teaching credits include courses in information resources and services, user instruction, and an undergraduate seminar for honors students on knowledge and society in the information age. She has numerous publications in the areas of management, user instruction, undergraduate education, and critical thinking, including a co-authored book, *Reaching a Multicultural Student Community*, published by Greenwood Press.

Michael McClennan is the head of systems for the Internet Public Library and is the developer of QRC, a software package for coordinating the operation of digital reference services. He has a Ph.D. in Computer Science from the University of Michigan.

Charles R. McClure is Francis Eppes Professor at Florida State University's School of Information Studies and director of the Information Use Management and Policy Institute. Chuck received the American Library Association's Jesse H. Shera award for the best research study in library/information science for 1990 for his study of Electronic Networks, the Research Process, and Scholarly Communication. He has authored and edited more than 35 monographs and 250 reports, chapters, and papers. Chuck received his Ph.D. in Library and Information Services from Rutgers University.

Susan McGlamery is the reference coordinator for the Metropolitan Cooperative Library System, and has an extensive history managing reference services in legal, corporate and public library environments.

Joseph Meloche has taught and researched in the area of information seeking for the past several years. He is currently working as a lecturer at the School of Information at Charles Sturt University (Australia) in a library studies program taught in the distance mode. He also has experience working as a senior subject librarian and CD-ROM Coordinator at the University of Sydney's Fisher Library. He is the author of several papers on information seeking and information literacy, as well as the monograph, *Introductory CD ROM Searching: The Key to Effective Ondisc Searching*, Haworth Press, 1994.

Makiko Miwa is an information consultant for Epoch Research Corporation, a Tokyo-based consulting firm in the field of information services. She began working there as an information broker in 1983. Her work focuses on user-based research and development of information retrieval systems and services, international information transfer, and human information behavior. She also serves on national and industrial IT-related committees in Japan. Makiko conducts research, writes, consults, and lectures frequently on information technology, information services, and system development. Makiko received her B.A. from Japan Women's University at

Tokyo and an M.L.S. from University of Pittsburgh. She received a Ph.D. in information transfer from Syracuse University in 2000.

O

Lorena O'English received her M.L.I.S. from the University of Washington's School of Library and Information Science. She has been working as a reference librarian at the University of Washington's Suzzallo and Allen Libraries but will shortly be moving to the Washington State University library system. Her interest in using technology to solve information problems began while she was employed at Project Vote Smart, a nonprofit political information organization and has grown as she moved into the library field.

P

Kit Pitkin – no biography available

R

Donna Reed coordinates the Community Information Program at Multnomah County Library in Portland, OR. In this capacity, she oversees the development of the library's Web site, coordinates CascadeLink, a regional community information network, and works with governmental Web builders countywide. She received her M.L.I.S. from Emporia State University.

Alex Rolfe is a second year student at the University of Washington Information School. Prior to entering library school, he received a masters' degree in medieval history. Last year, he worked as a research assistant for Joe Janes, while learning the ropes as a reference assistant in both the Odegaard Undergraduate Library and Government Publications. His current interests are in library history and reference.

S

Mary V. Schorn is a technical information specialist for the U.S. Department of Energy (DOE) Office of Scientific and Technical Information (OSTI). Among her responsibilities are the management and development of two Web-based databases, liaison for distribution of DOE and worldwide energy-related information, and special projects. During her employment with OSTI, she has directed and provided leadership for a design requirements team for the *EnergyFiles* prototype and an infrastructure redesign procedures and training team. She has independently developed and maintained the OSTI Government Information Locator Service (GILS) records. Schorn holds a B.S. from the University of Alabama and a Masters of Science in Library Science from the University of Tennessee.

Joe Schumacher - no biography available

Roseanne Schwartz - no biography available

Jim Self is director of management information services for the University of Virginia Library. Since 1996, he has served as Chair or Co-Chair of the Collections Group and as Virginia's collection development representative at ALA. Since 1997, Self has served on the The Virtual Library of Virginia (VIVA) Collections Committee and its successor, the Resources for Users Committee. In 1998 he co-chaired the evaluation and RFP subcommittee for full-text databases and is currently the chair of an evaluation group. Self previously served as director of the Clemons Library at the University of Virginia and a librarian at Indiana University in Bloomington. Self has presented at meetings of the American Library Association, the Virginia Library

Association, and the Indiana Library Association and has been published in *Library and Information Science Research*, *Collection Management*, *Information Technology and Libraries*, and *Wilson Library Bulletin*.

Doris Settles is the clearinghouse coordinator for the Center for School Safety. She produces and administers print and Web-based publications, an AskA service, a resource library and directory, and a Web site. She is a former journalist and teacher of English composition. She holds degrees in English, Journalism and Instructional Design from the University of Kentucky.

Pauline Lynch Shostack coordinates the AskERIC service and its team of information specialists. AskERIC Q&A is an electronic service providing research assistance to anyone interested in the process or practice of education. The AskERIC Web site provides a wealth of education-related information including a lesson plan collection and the ERIC Database. Pauline earned her B.S. in psychology and elementary teacher certification from LeMoyne College and received her M.L.S. at Syracuse University. Pauline also works part-time as a reference librarian at the Liverpool Public Library and is an adjunct faculty member for the School of Information Studies.

Dr. Joanne Silverstein is head of research and development at the Information Institute of Syracuse and assistant research professor at Syracuse University's School of Information Studies. Her research includes the management of e-mail centers and customer communications in federal agencies. She recently completed an analysis of e-mail help centers for the Department of Education's National Library of Education. Silverstein has worked in software design, testing and management at General Electric Corporation and Genigraphics Corporation, and has consulted with several corporations to harness the Internet and the Web for competitive advantage. Silverstein received her Ph.D. in Electronic Commerce and her M.S. in Information Resource Management from Syracuse University.

Karen J. Spence is assistant director for the Office of Program Integration for the U.S. Department of Energy Office of Scientific and Technical Information (OSTI). She provides leadership and coordination for the department-wide Scientific and Technical Information Program and assures access to the energy-related information, which supports the Department of Energy mission. Her duties include coordination with departmental organizations, other government agencies, and private and domestic organizations, as well as coordination of international partnerships. Ms. Spence is also responsible for OSTI strategic and operational planning, policy development, product management, promotions/marketing, and customer advocacy. She has more than fourteen years of government and private industry experience. She holds a master's degree in library science from the University of Alabama.

Tim Steury is director of Ask Dr. Universe, a newspaper and Web service that draws on the resources of the research university to answer questions for children of all ages. He is currently the editor of *Universe* magazine, Washington State University's magazine of research, scholarship, and the arts. He taught literature and writing at a number of institutions including the University of Idaho for 11 years. He was editor for several years of the former *Palouse* Journal, a regional magazine, and has written on a wide range of subjects for many publications.

Sam Stormont is electronic reference services librarian and communications subject specialist at Temple University Libraries. He was a user services supervisor at Telebase Systems from 1988-1991. He served as president of the Academic Assembly of Librarians at Temple University and president of the Drexel University College of Information Science & Technology Alumni Association from 1999-2000. He received his B.A. from DePauw University, his M.A. from Temple University, and his M.S. from Drexel University.

Stuart Sutton is associate professor of The Information School of the University of Washington. He teaches in the areas of information law and policy, legal informatics, and the organization of information. Sutton received his M.L.I.S. in 1986 and Ph.D. in 1991 from the University of California at Berkeley School of Library and Information Studies. He is a member of the California Bar and received his J.D. in 1981 from Golden Gate University School of Law and his LL.M. in copyright from the University of California at Berkeley, Boalt Hall

School of Law. He holds B.A. and M.A. degrees in theatre arts from San Francisco State University. He has served on the faculties of Syracuse University and San Jose State University and in a visiting position at the University of California at Berkeley.

V

Rachel Viggiano is a distance learning librarian at the Florida Distance Learning Reference & Referral Center. She received her Master of Arts in Library Science from the University of South Florida in 1998.

W

David Ward is reference services coordinator at the University of Illinois Undergraduate Library. He worked as a graduate assistant at the Undergraduate Library from 1996-1998. Ward has also worked as a reference/instruction librarian at the University of Nevada at Las Vegas. His primary responsibilities include training for and supervising of the library's reference desk. His research focuses on using networked technology to improve both user services and faculty/librarian productivity.

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Abby Kasowitz is Coordinator of the Virtual Reference Desk (VRD) Project, a project of the United States Department of Education, operated at the Information Institute of Syracuse (IIS). Kasowitz is co-author of the *AskA Starter Kit: How to Build and Maintain Digital Reference Services* and co-editor of *Digital Reference Service in the New Millennium: Planning, Management, and Evaluation*. Kasowitz organizes the annual VRD conference, an international conference on Internet-based reference service for library and information professionals; researches the digital reference field; and assists organizations in building digital reference services.

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Joan Stahl is Administrator of Electronic Resources and Image Collections at the Smithsonian American Art Museum. She began "Joan of Art" (http://AmericanArt.si.edu), the museum's digital reference service, in 1993 on America Online. The service answers questions received from around the world on the subject of American art and artists.

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